Note remarks

Test sheet : MB 11,0 z : 21.06.91 Edition : 24.4.91 Replaces : ISO-4113 Test oil

: 0 401 876 775 Combination no.

Injection pump

Pump designation: PE6P110A320LS3835-3

EP type number : 0 411 816 773

Governor

Governor design. : RSV350...1050P0A531-

: 0 421 833 343 Governer no.

Customer-spec. information

: MERCEDES-BENZ Customer

: OM 441 Engine

: 160.0 1st version kW : 2100 Rated speed

TEST BENCH REQUIREMENTS

Test oil

inlet temp. °C : 38...42

Overflow valve

: 1 417 413 025

Inlet press., bar: 1.50

Overflow

quantity min. 1/h: 100...120

Test nozzle holder

: 0 681 343 009 assembly

Opening.

: 172...175 pressure, bar

: 1 680 750 015 Test Lines

Outside diameter

x Wall thickness

: 6.00x1.50x600 x Length mm

(A) Injection pump setting values Insp. values in parentheses Set equal delivery quant.

per values

BEGINNING OF DELIVERY

Test pressure, bar: 25...27

Prestroke mm : 4.00...4.10 ; (3.95...4.15)

Rack travel in mm : 9.00...12.00

: 6-3-5-2-4-1 Firing order

: 0-60-120-180-240-300 Phasina

Tolerance + - ° : 0.50 (0.75)

Time to cyl. no. : 6

BASIC SETTING

rpm: 10301st speed

Rack travel in mm : 13.50...13.60

Del.guantity cm3/: 13.6...13.8

100 s: (13.3...14.0)

cm3 : 0.4Spread

100 s: (0.8)

2nd speed rpm : 350.0

Rack travel in mm: 8.3...8.9

Del.quantity cm3/: 1.2...1.8 100 s: (0.9...2.0)

cm3 : 0.4

Spread 100 s: (0.7)

GUIDE SLEEVE POSITION Control-lever position

Degree: -3 rpm : 800 Speed

Rack travel in mm : 0.30...0.70

Governor spring pre-tension

Click setting x : ?

FULL LOAD DELIV. AT FULL LOAD STOP

1st version

rpm : 1030 Speed

: 136.0...138.0 Del.quantity

1000 : (133.5...140.5)

: 4.00 cm3 Spread

1000 : (8.00)

RATED SPEED

1st version

Control lever

position degrees: 88...96

Testing:

1st rack travel in: 12.50 Speed rpm : 1070...1080 2nd rack travel in: 4.00 Speed rpm : 1130...1160 4th rack travel in: 1300 Speed rom : 0.30...1.40LOW IDLE 1

Control lever

position degrees: 64...72 Setting point w/out bumper spring

rpm : 350 Speed Rack travel in mm: 8.6

Testing:

rpm : 100 Speed Minimum rack trave: 19.50
Speed rpm : 350
Rack travel in mm : 8.30...8.90
Rack travel in mm : 2.00
Speed rpm : 380...440

SET IDLE AUXILIARY SPRING Rack travel in mm: 2.00

FUEL DELIVERY CHARACTERISTICS

1st version

Speed rpm : 750
Del.quantity cm3/: 124.0...128.0
1000 s: (121.0...131.0)

cm3 : 6.00 1000 s: (8.00) Spread

BREAKAWAY

1st version 1mm rack travel less than

full load rack tr: 12.50 rpm : 1070...1080 Speed

STARTING FUEL DELIVERY

Speed rpm : 100 Del.quantity cm3/ : 140.0...160.0 1000 s: (136.0...164.0)

Remarks:

Observe VDT-I-420/120

Note remarks

Test sheet : MAN 10,0 a1 : 18.02.91 Edition : 25.1.91 Replaces : ISO-4113 Test oil

Combination no. : 0 402 035 022

Injection pump

Pump designation : PES5P120A720/3LS512

EP type number : 0 412 025 021

Governor

Governor design. : RQ325/1000PA813-14

: 0 421 801 530 Governer no.

Customer—spec. information Customer : MAN

Engine : D2865LF02

: 199.0 1st version kW Rated speed : 2000

TEST BENCH REQUIREMENTS

Test oil

inlet temp. °C : 38...42

Overflow valve

: 1 417 413 025

Inlet press., bar: 1.50

Test nozzle holder

: 1 688 901 019 assembly

Opening 1

: 207...210 pressure, bar

Orifice plate

diameter mm : 0,8

: 1 680 750 067 Test lines

Outside diameter x Wall thickness

x Length mm : 6.00x1.50x1000

(A) Injection pump setting values Insp. values in parentheses Set equal delivery quant.

per values

BEGINNING OF DELIVERY

Test pressure, bar: 30...32

Prestroke mm : 3.50...3.60 : (3.45...3.65)

Rack travel in mm : 9.00...12.00

: 1-3-5-4-2 Firing order

: 0-72-144-216-288 Phasing

Tolerance + - ° : 0.50 (0.75)

Time to cyl. no. : 5

BASIC SETTING

rpm: 750 1st speed

Rack travel in mm : 11.10...11.20

Del.quantity cm3/: 21.7...21.9

100 s: (21.4...22.2)

Spread cm3 : 0.5

100 s: (0.9)

rpm : 325.0 2nd speed

Rack travel in mm : 4.2...4.6 Del.quantity cm3/ : 1.7...2.3

100 s: (1.4...2.6)

cm3 : 0.8Spread

100 s: (1.2)

GUIDE SLEEVE POSITION Control-Lever position

Degree: -2

rpm : 600 Speed

Rack travel in mm : 19.20...20.80

FULL LOAD DELIV. AT FULL LOAD STOP

1st version

rpm : 750 Speed

Aneroid pressure h: 1000

Del.quantity : 217.0...222.0)

: 5.00 cm3

1000 : (9.00)

RATED SPEED

Spread

1st version

Setting point:

: 600 rpm Rack travel in mm: 20.0

Testing:

1st rack travel in: 9.90

: 1045...1060 Speed rom 2nd rack travel in: 4.00 rpm : 1115...1145 Speed 4th rack travel in: 1250 rom : 0.00...1.00Speed LOW IDLE 1 Setting point w/out bumper spring rpm : 325 Rack travel in mm: 4.4 Testing: Speed : 100 rpm Minimum rack trave: 5.90 : 325 Speed MON Rack travel in mm : 4.30...4.50 Rack travel in mm : 2.00 Speed : 360...400 rom TORQUE CONTROL Dimension a mm : 0.20 Torque control curve - 1st version 1st speed rpm : 1000 Rack travel in m: 10.90...11.00 2nd speed rpm : 750 Rack travel in m: 11.30...11.50 : 850 3rd speed rom Rack travel in m: 11.10...11.30 Aneroid/Altitude Compensator Test 1st version Setting : 500 Speed rpm hPa : 1000 Pressure : 11.10...11.20 Rack travel mm Measurement 1/min: 500 Speed 1st pressure hPa : -Rack travel in m: 8.30...8.50 2nd pressure hPa : 100 Rack travel in m: 8.70...8.80 3rd pressure hPa : 350 Rack travel in m: 10.40...10.60 START CUT-OUT Speed 1/min: 220 (240) FUEL DELIVERY CHARACTERISTICS 1st version

Del.quantity cm3/: 213.0...217.0 1000 s: (210.0...220.0) Aneroid pressure h: 1000 Speed rom : 650 Del.quantity cm3/: 207.0...213.0 1000 s: (204.0...216.0) Aneroid pressure h: -Speed rpm: 500
Del.quantity cm3/: 134.0...136.0
1000 s: (131.0...139.0) BREAKAWAY 1st version 1mm rack travel less than full load rack tr: 9.90 rpm : 1045...1060 Speed STARTING FUEL DELIVERY : 100 Speed rpm Del.quantity cm3/: 190.0...210.0 1000 s: (186.0...214.0) LOW IDLE rpm : 325 Speed Rack travel in mm : 4.20...4.60 Del.quantity cm3/: 17.0...23.0 1000 s: (14.0...26.0) cm3 : 8.00 1000 s: (12.00) Spread Remarks: : MAN-NR. 3-7043 Setting and blocking of pointer of start-of-delivery sensor on cyl. 5 start of delivery

Speed

Aneroid pressure h: 1000

rom : 1000

BOSCH INJ. PUMP TEST SPECIFICATIONS Note remarks Test sheet : MAN 11,9a42 : 28.06.91 Edition : 6.7.90 Replaces Test oil : ISO-4113 Combination no. : 0 402 036 081 Injection pump Pump designation: PES6P120A720/3LS470-: 0 412 026 050 EP type number Governor Governor design. : RQ300/1000PA813-16 : 0 421 801 531 Governer no. Customer-spec. information Customer : MAN : D2866LF 04..LH01 Engine : 221.0 1st version kW Rated speed : 2000 TEST BENCH REQUIREMENTS Test oil inlet temp. °C : 38...42 Overflow valve : 1 417 413 025 Inlet press., bar: 1.50 Test nozzle holder : 1 688 901 019 assembly **Opening** : 207...210 pressure, bar Orifice plate diameter mm : 0,8 Test lines : 1 680 750 067 Outside diameter x Wall thickness : 6.00x1.50x1000 x Length mm (A) Injection pump setting values Insp. values in parentheses

Set equal delivery quant.

per values

BEGINNING OF DELIVERY

Test pressure, bar: 30...32

: 2.80...2.90 Prestroke mm : (2.75...2.95) Rack travel in mm : 9.00...12.00 : 6-2-4-1-5-3 Firing order : 0-60-120-180-240-300 Phasing Tolerance + - ° : 0.50 (0.75) Time to cyl. no. : 6 BASIC SETTING 1st speed rpm: 750 Rack travel in mm : 10.30...10.40 Del.quantity cm3/: 18.5...18.7 100 s: (18.2...19.0) Spread cm3 : 0.5100 s: (0.9) rpm : 300.02nd speed Rack travel in mm : 4.7...4.9 Del.quantity cm3/: 1.2...1.8 100 s: (0.9...2.1) cm3 : 0.8Spread 100 s: (1.2) GUIDE SLEEVE POSITION Control-lever position Degree: -2 rpm : 600 Rack travel in mm : 19.20...20.80 FULL LOAD DELIV. AT FULL LOAD STOP 1st version Speed rpm : 750 Aneroid pressure h: 1000 Del.quantity : 785.0...190.0) : 5.00 Spread cm31000 : (9.00) RATED SPEED 1st version Setting point: Speed rpm Rack travel in mm : 20.0

Testing:

1st rack travel in: 9.20 rpm : 1045...1060 Speed 2nd rack travel in: 4.00 rpm : 1100...1130 Speed 4th rack travel in: 1250 rpm : 0.00...1.00 Speed LOW IDLE 1 Setting point w/out bumper spring Speed rpm Rack travel in mm: 4.8 Testing: Speed rpm : 100 Minimum rack trave: 6.30 rpm : 300 Rack travel in mm: 4.70...4.90
Rack travel in mm: 2.00
Speed rpm: 355...395 TORQUE CONTROL Dimension a mm : 0.30 Torque control curve - 1st version rpm : 1000 1st speed Rack travel in m: 10.20...10.30 rpm : 750 2nd speed Rack travel in m: 10.90...11.10 3rd speed rpm : 850 Rack travel in m: 10.50...10.70 Aneroid/Altitude Compensator Test 1st version Setting : 500 Speed rpm Pressure hPa : 1000 Rack travel mm : 10.30...10.40 Measurement 1/min: 500 Speed 1st pressure hPa : -Rack travel in m: 8.90...9.10 2nd pressure hPa : 85 Rack travel in m: 9.30...9.40 3rd pressure hPa : 160 Rack travel in m: 9.70...10.00 START CUT-OUT 1/min: 190 (210) Speed FUEL DELIVERY CHARACTERISTICS 1st version

Del.quantity cm3/: 191.0...197.0 1000 s: (188.0...200.0) Aneroid pressure h: 1000 rpm : 650 Speed Del.quantity cm3/: 176.0...182.0 1000 s: (173.0...185.0) Aneroid pressure h: rpm_ : 500 Speed Del.quantity cm3/: 132.0...134.0 1000 s: (129.0...137.0) **BREAKAWAY** 1st version 1mm rack travel less than full load rack tr: 9.20 rpm : 1045...1060 Speed STARTING FUEL DELIVERY : 100 Speed rpm Del.quantity cm3/: 225.0...245.0 1000 s: (221.0...249.0) LOW IDLE Speed rpm : 300 Rack travel in mm : 4.70...4.90 Del.quantity cm3/: 12.0...18.0 1000 s: (9.0...21.0) cm3 : 8.00 Spread 1000 s: (12.00) Remarks: : MAN-NR. 3-7053 Setting and blocking of pointer of start-of-delivery sensor on cyl. 6 start of delivery

A06

Speed

Aneroid pressure h: 1000

LDW

: 1000

Note remarks

: MAN 11,9a43 Test sheet : 28.06.91 Edition : 14.9.90 Replaces : ISO-4113 Test oil

: 0 402 036 082 Combination no.

Injection pump

Pump designation : PES6P120A720/3LS470-

EP type number : 0 412 026 050

Governor

Governor design. : RQV300...1000PA876-7

: 0 421 813 867 Governer no.

Customer-spec. information Customer : MAN

: D2866LF 04..LH01 Engine

: 221.0 1st version kW : 2000 Rated speed

TEST BENCH REQUIREMENTS

Test oil

inlet temp. °C : 38...42

Overflow valve

: 1 417 413 025

Inlet press., bar: 1.50

Test nozzle holder

: 1 688 901 019 assembly

Opening

: 207...210 pressure, bar

Orifice plate

diameter mm : 0,8

Test Lines : 1 680 750 067

Outside diameter

x Wall thickness

: 6.00X1.50X1000 x Length mm

(A) Injection pump setting values Insp. values in parentheses Set equal delivery quant.

per values

BEGINNING OF DELIVERY

Test pressure, bar: 30...32

: 2.80...2.90 Prestroke mm : (2.75...2.95)

Rack travel in mm : 9.00...12.00

: 6-2-4-1-5-3 Firing order

: 0-60-120-180-240-300 Phasing

Tolerance + - * : 0.50 (0.75)

Time to cyl. no. : 6

BASIC SETTING

rpm: 750 1st speed

Rack travel in mm : 10.20...10.30

Del.quantity cm3/: 18.5...18.7

100 s: (18.2...19.0)

cm3 : 0.5Spread

100 s: (0.9)

2nd speed rpm : 300.0 Rack travel in mm : 4.7...4.9 Del.quantity cm3/: 1.2...1.8

100 s: (0.9...2.1)

cm3 : 0.8Spread 100 s: (1.2)

(B) Setting of injection pump with governor

GUIDE SLEEVE TRAVEL

rpm : 1045 1st speed

9.90...10.10 travel mm

300 2nd speed rpm

1.60...1.80 travel mm

3rd speed 500 rpm

3.40...4.00 travel mm : 800

4th speed rpm

: 6.70...7.10 travel mm

5th speed rpm : 1250

: 13.00...14.00 travel mm

GUIDE SLEEVE POSITION Control-lever position

Degree: -1

rpm : 1100

Rack travel in mm : 15.20...17.80

FULL LOAD DELIV. AT FULL LOAD STOP

1st version

rpm : 750 Speed

Aneroid pressure h: 1000 Del.quantity : 185.0...187.0 Del.quantity : 785.0...190.0) : 5.00 cm3 Spread 1000 : (9.00) RATED SPEED 1st version Control lever position degrees: 296...304 Testing: 1st rack travel in: 9.20 Speed rpm : 1040...1050 2nd rack travel in: 4.00 : 1090...1120 Speed man. 4th rack travel in: 1250 rpm : 0.00...1.00Speed LOW IDLE 1 Control Lever position degrees: 256...264 Testing: Speed rpm Minimum rack trave: 6.30 Speed rpm : 300 Rack travel in mm : 4.70...4.90 CONSTANT REGULATION rpm : 280...390 Speed TORQUE CONTROL Dimension a mm Torque control curve - 1st version 1st speed rpm : 1000 Rack travel in m: 10.20...10.30 2nd speed rpm : 750 Rack travel in m: 10.20...10.30 Aneroid/Altitude Compensator Test 1st version Settina : 500 Speed rpm hPa : 1000 Pressure : 10.20...10.30 Rack travel mm Measurement 1/min: 500 Speed 1st pressure hPa : Rack travel in m: 8.90...9.10 2nd pressure hPa : 85 Rack travel in m: 9.30...9.40 3rd pressure hPa : 160 Rack travel in m: 9.70...10.00

START CUT-OUT 1/min : 220 (240) Speed FUEL DELIVERY CHARACTERISTICS 1st version Aneroid pressure h: 1000 rpm : 1000 Speed Del.quantity cm3/: 191.0...197.0 1000 s: (188.0...200.0) Aneroid pressure h: 1000 Speed rpm Del.quantity cm3/: 176.0...182.0 1000 s: (173.0...185.0) Aneroid pressure h: rpm : 500 Speed Del.quantity cm3/: 132.0...134.0 1000 s: (129.0...137.0) BREAKAWAY 1st version 1mm rack travel less than full load rack tr: 9.20 Speed rpm : 1040...1050 Speed STARTING FUEL DELIVERY rpm : 100 Del.quantity cm3/: 225.0...245.0 1000 s: (221.0...249.0) LOW IDLE rpm : 300 Speed Rack travel in mm : 4.70...4.90 Del.quantity cm3/: 12.0...18.0 1000 s: (9.0...21.0) cm3 : 8.00Spread 1000 s: (12.00) Remarks: : MAN-NR. 3-7054 Setting and blocking of pointer of start-of-delivery sensor on cyl. 6

start of delivery

Note remarks

Test sheet : MAN 11,9 g9 : 26.07.91 Edition

Replaces

: ISO-4113 Test oil

Combination no. : 0 402 036 086

Injection pump

Pump designation : PES6P110A720/3LS477-

EP type number : 0 412 016 071

Governor

Governor design. : RQ250/1050PA845 Governer no. : 0 421 801 604

Customer-spec. information

Customer : MAN

: D2866 F/UM Engine

1st version kW : 152.0 : 2100 Rated speed

TEST BENCH REQUIREMENTS

Test oil

inlet temp. °C : 38...42

Overflow valve

: 1 417 413 025

Inlet press., bar: 1.50

Test nozzle holder

: 0 681 343 009 assembly

Opening |

: 172...175 pressure, bar

Test Lines : 1 680 750 015

Outside diameter

x Wall thickness

: 6.00X1.50X600 x Length mm

(A) Injection pump setting values Insp. values in parentheses Set equal delivery quant.

per values _

BEGINNING OF DELIVERY

Test pressure, bar: 30...32

: 3.50...3.60 Prestroke mm

: (3.45...3.65)

Rack travel in mm : 9.00...12.00

: 6-2-4-1-5-3 Firing order

: 0-60-120-180-240-300 Phasing

Tolerance + - ° : 0.50 (0.75)

Time to cyl. no. : 6

BASIC SETTING

1st speed rom: 800

Rack travel in mm : 10.90...11.00

Del.quantity cm3/: 10.0...10.3

100 s: (9.7...10.5)

cm3 : 0.4Spread

100 s: (0.7)

rpm : 250.0 2nd speed Rack travel in mm: 6.0...6.2 Del.quantity cm3/: 1.5...2.0

100 s: (1.2...2.2)

cm3 : 0.4Spread 100 s: (0.7)

GUIDE SLEEVE POSITION Control-lever position

Degree: -2

rpm : 600 Speed

Rack travel in mm : 19.20...20.80

FULL LOAD DELIV. AT FULL LOAD STOP

1st version

rpm : 800 Speed

: 100.0...103.0 Del.quantity 1000 : (97.5...105.5)

: 4.00 Spread cm3

1000 : (7.50)

RATED SPEED

1st version

Setting point:

Speed rpm Rack travel in mm: 20.0

Testing:

1st rack travel in: 9.90

rpm : 1095...1110 Speed

2nd rack travel in: 4.00

rpm : 1170...1200 Speed

AD9

4th rack travel in: 1350 rpm : 0.00...1.00 Speed LOW IDLE 1 Setting point w/out bumper spring rpm : 250 Rack travel in mm: 6.1 Testing: rpm : 100 Speed Minimum rack trave: 7.60 Speed rpm : 250
Rack travel in mm : 6.00...6.20
Rack travel in mm : 2.00
Speed rpm : 320...360 TORQUE CONTROL Dimension a mm : -Torque control curve - 1st version 1st speed rpm : 800 Rack travel in m: 10.90...11.00 2nd speed rpm : 1050 Rack travel in m: 10.80...11.00 START CUT-OUT 1/min: 170 (190) Speed

FUEL DELIVERY CHARACTERISTICS

1st version Speed rpm : 1050 Del.quantity cm3/: 111.0...115.0 1000 s: (108.0...118.0) Speed rpm : 500 Del.quantity cm3/: 91.0...95.0 1000 s: (88.0...98.0)

BREAKAWAY

1st version 1mm rack travel less than

full load rack tr: 9.90 Speed rpm : 1095...1110

STARTING FUEL DELIVERY

Speed rpm : 100 Del.quantity cm3/ : 110.0...130.0 1000 s: (106.0...134.0)

LOW IDLE

Speed rpm : 250 Rack travel in mm : 6.00...6.20 Del.quantity cm3/: 15.0...20.0 1000 s: (12.5...22.5)

Spread cm3 : 4.50 1000 s: (7.50)

Remarks:

: MAN-NR. 3-7166

Note remarks

Test sheet : MAN 11,9q10

Edition

: 02.08.91

Replaces

Test oil

: ISO-4113

Combination no.

: 0 402 036 086

Injection pump

Pump designation : PES6P110A720/3LS477-

EP type number

: 0 412 016 071

Governor

Governor design. : RQ250/1050PA845-2

Governer no.

: 0 421 801 604

Customer-spec. information

Customer

: MAN

Engine

: D2866 F/UM

1st version kW

: 152.0

Rated speed

: 2100

TEST BENCH REQUIREMENTS

Test oil

inlet temp. °C

: 38...42

Overflow valve

: 1 417 413 025

Inlet press., bar: 1.50

Test nozzle holder

assembly

: 0 681 343 009

Opening

pressure, bar

: 172...175

Test lines

: 1 680 750 015

Outside diameter

x Wall thickness

x Length mm

: 6.00x1.50x600

(A) Injection pump setting values Insp. values in parentheses

Set equal delivery quant.

per values

BEGINNING OF DELIVERY

Test pressure, bar: 30...32

Prestroke mm

: 3.50...3.60 : (3.45...3.65)

Rack travel in mm : 9.00...12.00 Firing order : 6-2-4-1-5-3

Phasing

: 0-60-120-180-240-300

Tolerance + - *

: 0.50 (0.75)

Time to cyl. no. : 6

BASIC SETTING

1st speed

rpm: 800

Rack travel in mm: 10.90...11.00

Del.quantity cm3/: 10.0...10.3

100 s: (9.7...10.5)

Spread

Spread

cm3 : 0.4

100 s: (0.7)

2nd speed rpm : 250.0

Rack travel in mm: 6.0...6.2

Del.quantity cm3/: 1.5...2.0 100 s: (1.2...2.2)

cm3 : 0.4

100 s: (0.7)

GUIDE SLEEVE POSITION

Control-lever position

Degree: -2

rpm : 600

Rack travel in mm : 19.20...20.80

FULL LOAD DELIV. AT FULL LOAD STOP

1st version

Speed

Speed

rpm : 800

: 100.0...103.0 Del.quantity

1000 : (97.5...105.5)

Spread

cm3 : 4.00 1000 : (7.50)

RATED SPEED

1st version

Setting point: Speed

rpm

Rack travel in mm: 20.0

Testing:

1st rack travel in: 9.90

rpm : 1095...1110 Speed 2nd rack travel in: 4.00

rpm : 1170...1200

Speed

4th rack travel in: 1350

Speed rpm : 0.00...1.00

LOW IDLE 1

Setting point w/out bumper spring

rpm : 250 Rack travel in mm: 6.1

Testing:

Speed rpm : 100 Minimum rack trave: 7.60 Speed rpm : 250 Rack travel in mm : 6.00...6.20

Rack travel in mm : 2.00

Speed rom : 330...370

TORQUE CONTROL

Dimension a mm :-

Torque control curve - 1st version

1st speed rpm : 800

Rack travel in m: 10.90...11.00

2nd speed rpm : 1050

Rack travel in m: 10.80...11.00

START CUT-OUT

1/min: 170 (190) Speed

FUEL DELIVERY CHARACTERISTICS

1st version

1000 s: (88.0...98.0)

BREAKAWAY

1st version 1mm rack travel less than

full load rack tr: 9.90 Speed rpm : 1095...1110 Speed

STARTING FUEL DELIVERY

rpm : 100

Del.quantity cm3/: 110.0...130.0

1000 s: (106.0...134.0)

LOW IDLE

rpm : 250

Rack travel in mm : 6.00...6.20

Del.quantity cm3/: 15.0...20.0 1000 s: (12.5...22.5)

cm3 : 4.50 Spread

1000 s: (7.50)

Remarks:

: MAN-NR. 3-7166

APPLICATION

Omnibus

Note remarks

Test sheet : MAN 11,9a45 : 26.07.91 Edition

Replaces

: ISO-4113 Test oil

: 0 402 036 087 Combination no.

Injection pump

Pump designation: PES6P120A720/3LS470-

EP type number

: 0 412 026 050

Governor

Governor design. : RQ300/1100PA813-6

Governer no. : 0 421 801 466

Customer-spec. information Customer : MAN

: D2866TUH/001 Engine

: 222.0 : 2200 1st version kW Rated speed

TEST BENCH REQUIREMENTS

Test oil

inlet temp. °C : 38...42

Overflow valve

: 1 417 413 025

Inlet press., bar: 1.50

Test nozzle holder

: 1 688 901 019 assembly

Opening

: 207...210 pressure, bar

Orifice plate

diameter mm 3.0:

Test Lines : 1 680 750 067

Outside diameter x Wall thickness

: 6.00X1.50X1000 x Length mm

(A) Injection pump setting values Insp. values in parentheses Set equal delivery quant.

per values ____

BEGINNING OF DELIVERY

Test pressure, bar: 30...32

Prestroke mm

: 2.80...2.90 : (2.75...2.95)

Rack travel in mm : 9.00...12.00

Firing order

: 6-2-4-1-5-3

Phasing

: 0-60-120-180-240-300

Tolerance + - °

: 0.50 (0.75)

Time to cyl. no. : 6

BASIC SETTING

1st speed rpm: 750

Rack travel in mm : 11.20...11.30

Del.guantity cm3/: 19.5...19.7

100 s: (19.2...20.0)

cm3 : 0.5Spread

100 s: (0.9)

rpm : 300.02nd speed

Rack travel in mm: 5.2...5.4

Del.quantity cm3/: 1.7...2.3

100 s: (1.4...2.6)

Spread cm3: 0.8

100 s: (1.2)

GUIDE SLEEVE POSITION Control-lever position

Degree: -2

rpm : 750

Rack travel in mm : 14.70...16.30

FULL LOAD DELIV. AT FULL LOAD STOP

1st version

rpm : 750 Speed

Aneroid pressure h: 1000

: 195.0...197.0 Del.quantity

1000 : (192.0...200.0)

: 5.00 Spread cm3

1000 : (9.00)

RATED SPEED

1st version

Setting point:

Speed rom Rack travel in mm : 15.5

Testing:

1st rack travel in: 10.20 rpm : 1095...1110 Speed 2nd rack travel in: 4.00 : 1140...1170 rpm Speed 4th rack travel in: 1300 Speed rpm : 0.00...1.00LOW IDLE 1 Setting point w/out bumper spring rpm : 300 Speed Testina: Speed rpm : 100 Minimum rack trave: 6.70 : 300 Speed rpm Rack travel in mm : 5.20...5.40 Rack travel in mm : 2.00 : 390...430 Speed rom TORQUE CONTROL Dimension a mm Torque control curve - 1st version 1st speed rpm : 750 Rack travel in m: 11.60...11.70 rpm : 1050 2nd speed Rack travel in m: 11.50...11.70 Aneroid/Altitude Compensator Test 1st version Setting Speed : 500 rpm Pressure hPa : 1000 Rack travel mm : 11.20...11.30 Measurement 1/min: 500 Speed 1st pressure hPa : -Rack travel in m: 8.80...9.00 2nd pressure hPa : 270 Rack travel in m: 9.10...9.20 3rd pressure hPa : 450 Rack travel in m: 10.10...10.50 START CUT-OUT 1/min: 220 (240) Speed FUEL DELIVERY CHARACTERISTICS 1st version

Speed rpm : 500 Del.quantity cm3/ : 119.0...121.0 1000 s: (116.0...124.0) **BREAKAWAY** 1st version 1mm rack travel less than full load rack tr: 10.20 rpm : 1095...1110 Speed STARTING FUEL DELIVERY : 100 Speed rem Del.quantity cm3/: 200.0...220.0 1000 s: (196.0...224.0) LOW IDLE Speed rpm : 300 Rack travel in mm : 5.20...5.40 Del.quantity cm3/: 17.0...23.0 1000 s: (14.0...26.0) cm3 : 8.00 Spread 1000 s: (12.00) Remarks: : MAN-NR. 3-7167 Setting and blocking of pointer of start-of-delivery sensor on cyl. 6 start of delivery **APPLICATION** Omnibus

Speed

Aneroid pressure h: 1000

Aneroid pressure h: -

rpm : 1050

Del.quantity cm3/: 204.0...208.0 1000 s: (201.0...211.0)

Note remarks

Test sheet : MAN 11,1q28 : 21.06.91 Edition : 11.85 Replaces Test oil : ISO-4113

Combination no. : 0 402 046 266

Injection pump

Pump designation : PES6P120A720LS388 : 0 412 026 030 EP type number

Governor

Governor design. : RQ250/1050PA658-8

Governer no. : 0 421 801 206

Customer-spec. information Customer : MAN

Engine : D2566MK279

: 206.0 1st version kW : 2100 Rated speed

TEST BENCH REQUIREMENTS

Test oil

inlet temp. °C : 38...42

Overflow valve

: 1 417 413 025

Inlet press., bar: 1.50

Test nozzle holder

: 1 688 901 019 assembly

Opening

: 207...210 pressure, bar

Orifice plate

: 0.8 diameter mm

Test lines : 1 680 750 067

Outside diameter

x Wall thickness

x Length mm : 6.00x1.50x1000

(A) Injection pump setting values Insp. values in parentheses Set equal delivery quant.

per values ____

BEGINNING OF DELIVERY

Test pressure, bar: 25...27

: 3.00...3.10 Prestroke mm

: (2.95...3.15)

Rack travel in mm : 9.00...12.00

: 6-2-4-1-5-3 Firing order

: 0-60-120-180-240-300 Phasing

Tolerance $+ - \circ : 0.50 (0.75)$

Time to cyl. no. : 6

BASIC SETTING

1st speed rom : 750

Rack travel in mm : 11.80...11.90

Del.quantity cm3/: 18.7...18.9

100 s: (18.4...19.2)

cm3 : 0.5Spread

100 s: (0.9)

rpm : 250.0 2nd speed Rack travel in mm: 6.3...6.5 Del.quantity cm3/: 1.1...1.7

100 s: (0.8...2.0)

cm3 : 0.8 Spread 100 s: (1.2)

GUIDE SLEEVE POSITION Control-lever position

Degree: -2

rom : 600

Rack travel in mm : 19.20...20.80

FULL LOAD DELIV. AT FULL LOAD STOP

1st version

Speed rpm : 750

Aneroid pressure h: 1000 Del.quantity

: 187.0...189.0 1000 : (184.0...192.0)

: 5.00 Cm3 Spread

1000 : (9.00)

RATED SPEED

1st version

Setting point:

Speed rpm Rack travel in mm: 20.0

Testing:

1st rack travel in: 9.70

rpm : 1050 Speed : 1095...1110 rpm Speed Del.quantity cm3/: 167.0...173.0 1000 s: (164.0...176.0) 2nd rack travel in: 4.00 rpm : 1180...1210 Speed 4th rack travel in: 1300 Aneroid pressure h: 1000 rpm : 0.00...1.00Speed Speed rom Del.quantity cm3/: 178.0...184.0 1000 s: (175.0...187.0) LOW IDLE 1 Aneroid pressure h: 310 Setting point w/out bumper spring : 500 rpm : 250 Speed man Del.quantity cm3/: 139.0...145.0 1000 s: (136.0...148.0) Rack travel in mm: 6.4 Aneroid pressure h: -Testing: : 500 rpm : 100 Speed Speed rpm Del.quantity cm3/: 113.0...115.0 1000 s: (110.0...118.0) Minimum rack trave: 7.90 Speed rom Rack travel in mm : 6.30...6.50 Rack travel in mm: 2.00 : 340...380 **BREAKAWAY** Speed rpm TORQUE CONTROL 1st version 1mm rack travel less than Dimension a mm : 0.50 Torque control curve - 1st version 1st speed rpm : 750 full load rack tr: 9.70 Rack travel in m: 12.00...12.20 rpm : 1095...1110 Speed rpm : 1050 2nd speed Rack travel in m: 10.60...10.80 STARTING FUEL DELIVERY rpm : 870 3rd speed Rack travel in m: 11.60...11.80 rpm : 935 4th speed Speed rpm : 100 Del.quantity cm3/: 225.0...245.0 1000 s: (221.0...249.0) Rack travel in m: 10.90...11.20 Aneroid/Altitude Compensator Test LOW IDLE Speed rpm : 250 Rack travel in mm : 6.30...6.50 1st version Del.quantity cm3/: 11.0...17.0 1000 s: (8.0...20.0) Settina Speed rpm : 500 cm3 : 8.00 Pressure hPa : 1000 Spread 1000 s: (12.00) Rack travel mm : 11.80...11.90 Measurement Remarks: $1/\min : 500$: MAN-NR. 2-7238 Speed 1st pressure hPa : -Rack travel in m: 9.50...9.70 2nd pressure hPa : 310 Rack travel in m: 10.50...10.60 3rd pressure hPa : 440 Rack travel in m: 11.20...11.60 START CUT-OUT 1/min : 190 (210) Speed FUEL DELIVERY CHARACTERISTICS 1st version Aneroid pressure h: 1000

Note remarks

Test sheet : RVI 9,8 k 1 : 21.06.91 Edition : 1.2.91 Replaces Test oil : ISO-4113

Combination no. : 0 402 046 342

Injection pump

Pump designation : PES6P120A320RS525-1 EP type number : 0 412 026 059

Governor

Governor design. : RQV275...1100PA984

: 0 421 813 904 Governer no.

Customer-spec. information Customer : RVI

: MIDR 06 20 45 Engine

1st version kW : 202.0 : 2200 Rated speed

TEST BENCH REQUIREMENTS

Test oil

inlet temp. °C : 38...42

Overflow valve

: 1 417 413 025

Inlet press., bar: 1.50

Test nozzle holder

: 1 688 901 019 assembly

Openina

pressure, bar : 207...210

Orifice plate

diameter mm : 0,8

Test lines : 1 680 750 067

Outside diameter x Wall thickness

: 6.00x1.50x1000 x Length mm

(A) Injection pump setting values Insp. values in parentheses Set equal delivery quant.

per values

BEGINNING OF DELIVERY

Test pressure, bar: 25...27

Prestroke mm : 2.80...2.90 : (2.75...2.95) Rack travel in mm : 9.00...12.00 Firing order : 1-5-3-6-2-4

Phasing : 0-60-120-180-240-300

Tolerance + - ° : 0.50 (0.75)

Time to cyl. no.

BASIC SETTING

rpm: 1100 1st speed

Rack travel in mm : 10.70...10.80

Del.quantity cm3/: 16.8...17.0

100 s: (16.5...17.3)

cm3 : 0.5Spread

100 s: (0.9)

rpm : 275.0 2nd speed Rack travel in mm: 5.6...6.0 Del.quantity cm3/: 1.5...2.1

100 s: (1.2...2.4)

cm3 : 0.8 Spread 100 s: (1.2)

(B) Setting of injection pump with governor

GUIDE SLEEVE TRAVEL

rpm : 1145 1st speed

: 8.40...8.60 travel mm

rpm : 275 2nd speed

: 0.80...1.20 travel mm

rpm : 500 3rd speed

: 3.50...4.10 travel mm 4th speed

rpm : 850

: 5.90...6.30 travel mm

rpm : 1450 5th speed

: 11.00...12.00 travel mm

GUIDE SLEEVE POSITION

Control-lever position

Degree: -1 rpm : 1125

Rack travel in mm : 15.20...17.80

FULL LOAD DELIV. AT FULL LOAD STOP

1st version

Speed

rpm : 1100 Speed Aneroid pressure h: 700

Del.quantity : 168.U...170.0 1000 : (165.U...173.0) Soread cm3 : 5.00 (9.00) RATED SPEED 1st version Control lever position degrees: 298...306 Testing: 1st rack travel in: 9.70 Speed rpm : 1180...1190 2nd rack travel in: 4.00 rpm : 1260...1290 Speed 4th rack travel in: 1400 rpm : 0.00...1.00 Speed LOW IDLE 1 Control Lever position degrees: 242...250 Testina: Speed rpm : 200 Minimum rack trave: 7.50 Speed rpm : 275 Rack travel in mm : 5.70...5.90 CONSTANT REGULATION rpm : 320...440 Speed Aneroid/Altitude Compensator Test 1st version Setting Speed : 500 hPa : 700 Pressure Measurement 1/min: 500 Speed 1st pressure hPa : Rack travel in m: 9.20...9.40 2nd pressure hPa : 220 Rack travel in m: 10.10...10.20 3rd pressure hPa : 195 Rack travel in m: 9.50...9.80 START CUT-OUT Speed 1/min : 220 (240) FUEL DELIVERY CHARACTERISTICS

1st version

Speed

A18

rpm : 700

Del.quantity cm3/: 155.0...161.0 1000 s: (152.0...164.0) Aneroid pressure h: rpm : 500 Speed Del.quantity cm3/: 103.0...105.0 1000 s: (100.0...108.0) BRFAKAWAY 1st version 1mm rack travel less than full load rack tr: 9.70 rpm : 1180...1190 Speed STARTING FUEL DELIVERY Speed : 100 LIDIU Del.quantity cm3/: 120.0...150.0 1000 s: (120.0...150.0) LOW IDLE Speed rpm : 275
Rack travel in mm : 5.60...6.00
Del.quantity cm3/ : 15.0...21.0
1000 s: (12.0...24.0) cm3 : 8.00Spread 1000 s: (12.00) Remarks: Setting and blocking of pointer of start-of-delivery sensor on cyl. 1 start of delivery

Note remarks

: FIA 7,7 b : 05.07.91 : 19.3.91 Test sheet Edition Replaces Test oil : ISO-4113

Combination no. : 0 402 046 343

Injection pump

Pump designation : PES6P120A720RS3275 EP type number : 0 412 026 745

Governor

Governor design. : RQV300...1100PA954-1

: 0 421 815 273 Governer no.

Customer-spec. information Customer : IVECO-FIAT

: 8360.46.016 Engine

TEST BENCH REQUIREMENTS

Test oil

inlet temp. °C : 38...42

Overflow valve

: 1 417 413 025

Inlet press., bar: 1.50

Test nozzle holder

: 1 688 901 105 assembly

Opening |

: 207...210 pressure, bar

Orifice plate

diameter mm : 0,8

Test lines : 1 680 750 008

Outside diameter

x Wall thickness

x Length mm : 6.00X2.00X600

(A) Injection pump setting values Insp. values in parentheses Set equal delivery quant.

per values

BEGINNING OF DELIVERY Test pressure, bar: 25...27

: 3.50...3.60 Prestroke mm

: (3.45...3.65)

Rack travel in mm : 9.00...12.00 : 1-5-3-6-2-4 Firing order

Phasing : 0-60-120-180-240-300

Tolerance + - ° : 0.50 (0.75)

Time to cyl. no. : 1

BASIC SETTING

1st speed rpm: 900

Rack travel in mm : 12.80...12.90

Del.quantity cm3/: 21.8...22.0

100 s: (21.5...22.3)

cm3 : 0.5Spread

100 s: (0.9)

rpm : 300.0 2nd speed Rack travel in mm: 4.2...4.6 Del.quantity cm3/: 2.0...2.6 100 s: (1.7...2.9)

cm3 : 0.8 Spread 100 s: (1.2)

(B) Setting of injection pump with governor

GUIDE SLEEVE TRAVEL

rpm : 1145 1st speed

travel mm : 10.60...10.80

300 2nd speed rom :

1.00...1.40 travel mm 3rd speed : 850 rpm

: 6.60...7.00 travel mm

4th speed rpm

: 1350 : 13.00...14.00 travel mm

GUIDE SLEEVE POSITION

Control-lever position

Degree: -1

rpm : 1150

Rack travel in mm : 15.20...17.80

FULL LOAD DELIV. AT FULL LOAD STOP

1st version

rpm : 900 Speed

Aneroid pressure h: 1500

Aneroid E. Del.quantity 1000 : 218.0...220.0 : (215.0...223.0)

: 5.00 cm3 Spread

1000 : (9.00)

RATED SPEED

1st version

Control Lever

position degrees: 115...123

Testing:

1st rack travel in: 11.40

rpm : 1140...1150 Speed

2nd rack travel in: 4.00

rpm : 1215...1245 Speed

4th rack travel in: 1400

rpm : 0.00...1.00Speed

LOW IDLE 1

Control Lever

position degrees: 65...73

Testing:

Speed man

Minimum rack trave: 5.90

rpm Rack travel in mm : 4.30...4.50

CONSTANT REGULATION

rpm : 340...450 Speed

TORQUE CONTROL

Dimension a mm : ?

Torque control curve - 1st version

rpm : 900 1st speed

Rack travel in m: 12.80...12.90

: 1100 2nd speed riom

Rack travel in m: 12.30...12.50

3rd speed rpm : 750

Rack travel in m: 12.30...12.50

Aneroid/Altitude

Compensator Test

1st version

Setting

Speed : 900 rpm hPa : 1500 Pressure

: 12.80...12.90 Rack travel mm

Measurement

1/min: 900 Speed

1st pressure hPa : Rack travel in m: 8.50...8.70

2nd pressure hPa : 600

Rack travel in m: 11.70...11.80

3rd pressure hPa : 420

Rack travel in m: 9.40...9.80

START CUT-OUT

Speed

1/min: 240 (260)

FUEL DELIVERY CHARACTERISTICS

1st version

Aneroid pressure h: 1500

: 1100 Speed rpm

Del.quantity cm3/: 203.0...209.0 1000 s: (200.0...212.0)

Aneroid pressure h: 1500

: 750 Speed man

Del.quantity cm3/: 202.0...208.0 1000 s: (199.0...211.0)

Aneroid pressure h: -

Speed rpm : 500 Del.quantity cm3/ : 102.0...104.0 1000 s: (99.0...107.0)

BREAKAWAY

1st version

1mm rack travel less than

full load rack tr: 11.40

rpm : 1140...1150 Speed

STARTING FUEL DELIVERY

Speed rpm : 100 Del.quantity cm3/ : 120.0...150.0

1000 s: (116.0...154.0)

LOW IDLE

Speed rpm : 300 Rack travel in mm : 4.20...4.60 Del.quantity cm3/: 20.0...26.0 1000 s: (17.0...29.0)

cm3 : 8.00 Spread

1000 s: (12.00)

Remarks:

Setting and blocking of pointer of start-of-delivery sensor on cyl. 1

start of delivery

Note remarks

: RVI 12.0 f1 : 21.06.91 : 27.2.91 Test sheet Edition Replaces Test oil : ISO-4113

: 0 402 046 758 Combination no.

Injection pump

Pump designation : PES6P120A320RS3139 EP type number : 0 412 026 718

Governor

Governor design. : RQV275...950PA728-1

: 0 421 813 465 Governer no.

Customer-spec. information Customer : RVI

: MIDR 063540 Engine

: 243.0 1st version kW : 1900 Rated speed

TEST BENCH REQUIREMENTS

Test oil

inlet temp. °C : 38...42

Overflow valve

: 1 417 413 025

Inlet press., bar: 1.50

Test nozzle holder

: 1 688 901 101 assembly

Opening

: 207...210 pressure, bar

Orifice plate

: 0,6 diameter mm

: 1 680 750 015 Test lines

Outside diameter x Wall thickness

: 6.00x1.50x600 x Length mm

(A) Injection pump setting values Insp. values in parentheses Set equal delivery quant. per values

BEGINNING OF DELIVERY

Test pressure, bar: 25...27

: 3.50...3.60 Prestroke mm

: (3.45...3.65)

Rack travel in mm : 9.00...12.00

Firing order : 1-5- 3- 6- 2- 4

: 0-60-120-180-240-300 Phasina

: 0.50 (0.75) Tolerance + - *

BASIC SETTING

rpm: 600 1st speed

Rack travel in mm : 12.50...12.60

Del.quantity cm3/: 19.7...19.9

100 s: (19.4...20.2)

Spread cm3 : 0.5

100 s: (0.9)

2nd speed rpm : 275.0
Rack travel in mm : 5.20...5.60
Del.quantity cm3/ : 2.2...2.6
100 s: (1.9...2.9)

cm3 : 0.8Spread 100 s: (1.2)

(B) Setting of injection pump with governor

GUIDE SLEEVE TRAVEL

rpm : 275 1st speed

: 1.30...1.70 travel mm rpm : 450 2nd speed

: 3.30...3.70 travel mm

: 800 3rd speed rpm

: 5.60...6.00 travel mm : 950 4th speed rpm

: 6.70...6.90 travel mm

GUIDE SLEEVE POSITION

Control-lever position

Degree: -1 Speed rpm : 1125 Rack travel in mm : 15.20...17.80

FULL LOAD DELIV. AT FULL LOAD STOP

1st version

rpm : 600 Speed Aneroid pressure h: 1000

Del.quantity : 19/.0....202.0)

cm3 : 5.00 Spread

1000 : (9.00) RATED SPEED

1st version

Control lever

position degrees: 59...67

Testing:

1st rack travel in: 11.50

Speed rpm : 1020...1030

2nd rack travel in: 4.00

Speed rpm : 1155...1185 4th rack travel in: 1250 Speed rpm : 0.00...1.00

LOW IDLE 1

Control lever

position degrees: 8,...16

Testing:

Speed rpm: 200 Minimum rack trave: 7.10

Speed rpm : 275 Rack travel in mm : 5.30...5.50

CONSTANT REGULATION

rom : 300...400 Speed

Anergid/Altitude Compensator Test

1st version

Setting

rpm : 500 hPa : 1000 Speed

Pressure

Rack travel mm : 12.50...12.60

Measurement

Speed 1/min: 500

1st pressure hPa : -

Rack travel in m: 8.90...9.30

2nd pressure hPa : 520 Rack travel in m: 11.80...11.90

3rd pressure hPa : 200 Rack travel in m: 10.10...10.40

START CUT-OUT

1/min: 195 (215) Speed

FUEL DELIVERY CHARACTERISTICS

1st version

Aneroid pressure h: 1000 rpm : 950 Speed

Del.quantity cm3/: 198.0...204.0 1000 s: (195.0...207.0)

Aneroid pressure h: -

rpm_ : 500 Speed

Del.quantity cm3/: 115.0...117.0 1000 s: (112.0...120.0)

BREAKAWAY

1st version

1mm rack travel less than

full load rack tr: 11.50

rpm : 1020...1030 Speed

STARTING FUEL DELIVERY

Speed rpm : 100 Del.quantity cm3/ : 155.0...185.0 1000 s: (151.0...189.0)

LOW IDLE

Speed rpm : 275
Rack travel in mm : 5.20...5.60
Del.quantity cm3/ : 22.0...26.0

1000 s: (19.0...29.0)

cm3 : 8.00 Spread

1000 s: (12.00)

Remarks:

Start-of-delivery mark 9° cam angle

after start of delivery cyl. 1.

BOSCH INJ. PUMP TEST SPECIFICATIONS Note remarks : MB 11,7 a18 Test sheet : 26.07.91 Edition Replaces Test oil : ISO-4113 Combination no. : 0 402 046 773A Injection pump Pump designation : PES6P110A820LS3131 : 0 412 016 715 EP type number Governor Governor design. : RQ300/1100PA800 Governer no. : 0 421 801 347 Customer-spec. information : MERCEDES-BENZ Customer : 0M427H Engine : 177.0 1st version kW : 2200 Rated speed TEST BENCH REQUIREMENTS Test oil inlet temp. °C : 38...42 Overflow valve : 1 417 413 025 Inlet press., bar: 1.50 Overflow quantity min. 1/h: 100...120 Test nozzle holder : 0 681 343 009 assembly Opening 1 : 172...175 pressure, bar : 1 680 750 015 Test lines Outside diameter x Wall thickness : 6.00X1.50X600 x Length mm (A) Injection pump setting values

Insp. values in parentheses Set equal delivery quant. per values BEGINNING OF DELIVERY Test pressure, bar: 25...27 A23

: 4.30...4.40 : (4.25...4.45) Prestroke mm Rack travel in mm : 9.00...12.00 Firing order : 6-2-4-1-5-3 Phasina : 0-60-120-180-240-300 Tolerance $+ - ^{\circ} : 0.50 (0.75)$ Time to cyl. no. : 6 BASIC SETTING 1st speed rpm: 1100 Rack travel in mm : 11.00...11.10 Del.quantity cm3/: 13.9...14.1 100 s: (13.6...14.3) cm3 : 0.4Spread 100 s: (0.8) 2nd speed rpm : 300.0Rack travel in mm: 7.2...7.4 Del.quantity cm3/: 1.4...2.0 100 s: (1.1...2.3) Spread cm3: 0.4 100 s: (0.8) GUIDE SLEEVE POSITION Control-lever position Degree: -1 rpm : 600 Speed Rack travel in mm : 12.50...13.50 FULL LOAD DELIV. AT FULL LOAD STOP 1st version rpm : 1100 Speed : 139.0...141.0 Del.quantity 1000 : (136.5...143.5) : 4.00 Spread cm3 1000 : (8.00) RATED SPEED 1st version Setting point: Speed rpm Rack travel in mm: 13.0 Testing:

1st rack travel in: 10.00

Speed

rpm : 1140...1150

2nd rack travel in: 4.00 Speed rpm : 1180...1210 4th rack travel in: 1300

rpm : 0.00...1.50 Speed

LOW IDLE 1

Setting point w/out bumper spring

Speed rpm : 300 Rack travel in mm : 7.3

Testing:

Speed rpm : 100 Minimum rack trave: 8.80

Speed rpm : 300
Rack travel in mm : 7.20...7.40
Rack travel in mm : 2.00
Speed rpm : 380...420

FUEL DELIVERY CHARACTERISTICS

1st version

Speed rpm : 600 bel.quantity cm3/ : 116.0...119.0 1000 s: (113.0...122.0)

cm3 : 6.00Spread

1000 s: (9.00)

BREAKAWAY

1st version 1mm rack travel less than

full load rack tr: 10.00

rpm : 1140...1150 Speed

STARTING FUEL DELIVERY

rpm : 100 Speed

Del.quantity cm3/: 130.0...150.0

1000 s: (126.0...154.0)

Remarks:

APPLICATION

Omnibus

BOSCH INJ. PUMP TEST SPECIFICATIONS Note remarks : MB 11,7 a19 Test sheet Edition : 26.07.91 Replaces : ISO-4113 Test oil Combination no. : 0 402 046 7738 Injection pump Pump designation : PES6P110A820LS3131 EP type number : 0 412 016 715 Governor Governor design. : RQ300/1100PA800 : 0 421 801 347 Governer no. Customer-spec. information : MERCEDES-BENZ Customer Engine : OM427H : 177.0 1st version kW Rated speed : 2200 TEST BENCH REQUIREMENTS Test oil inlet temp. °C : 38...42 Overflow valve : 1 417 413 025 Inlet press., bar: 1.50 Overflow quantity min. 1/h: 100...120 Test nozzle holder : 0 681 343 009 assembly Openina (: 172...175 pressure, bar Test Lines : 1 680 750 015 Outside diameter

Test lines : 1 680 750 015

Outside diameter
x Wall thickness
x Length mm : 6.00X1.50X600

(A) Injection pump setting values
 Insp. values in parentheses
 Set equal delivery quant.
 per values

BEGINNING OF DELIVERY
Test pressure, bar: 25...27

: 4.30...4.40 : (4.25...4.45) Prestroke mm Rack travel in mm : 9.00...12.00 Firing order : 6-2-4-1-5-3 Phasing : 0-60-120-180-240-300 Tolerance + - ° : 0.50 (0.75) Time to cyl. no. BASIC SETTING 1st speed rpm: 1100 Rack travel in mm : 11.00...11.10 Del.quantity cm3/: 13.9...14.1 100 s: (13.6...14.3) cm3 : 0.4Spread 100 s: (0.8) 2nd speed rpm : 300.0 Rack travel in mm : 7.2...7.4 Del.quantity cm3/ : 1.4...2.0 100 s: (1.1...2.3) cm3 : 0.4Spread 100 s: (0.8) GUIDE SLEEVE POSITION Control-lever position Degree: -1 Speed rpm: 600 Rack travel in mm: 12.50...13.50 FULL LOAD DELIV. AT FULL LOAD STOP 1st version rpm : 1100 Speed Del.quantity : 139.0...141.0 1000 : (136.5...143.5) cm3 : 4.00 Spread 1000 : (8.00) RATED SPEED 1st version Setting point: rpm : 600 Rack travel in mm: 13.0 Testing: 1st rack travel in: 10.00

rpm : 1140...1150

Speed

2nd rack travel in: 4.00

Speed rpm : 1180...1210 4th rack travel in: 1300 Speed rpm : 0.00...1.50

LOW IDLE 1

Setting point w/out bumper spring

Speed rpm : 300 Rack travel in mm : 7.3

Testing:

Speed rpm : 100 Minimum rack trave: 8.80

Speed rpm : 300
Rack travel in mm : 7.20...7.40
Rack travel in mm : 2.00
Speed rpm : 380...420

FUEL DELIVERY CHARACTERISTICS

1st version

Speed rpm : 600 Del.quantity cm3/: 116.0...119.0 1000 s: (113.0...122.0)

cm3 : 6.00 Spread 1000 s: (9.00)

BREAKAWAY

1st version 1mm rack travel less than

full load rack tr: 10.00

rpm : 1140...1150 Speed

STARTING FUEL DELIVERY

Speed rpm : 100 Del.quantity cm3/ : 130.0...150.0

1000 s: (126.0...154.0)

Remarks:

APPLICATION

Omnibus

Note remarks

Test sheet : ROL 12,2 i1 Edition : 26.07.91

Replaces : 9.10.87 Test oil : ISO-4113

Combination no. : 0 402 046 779

Injection pump

Pump designation : PES6P120A320RS3170-1

EP type number : 0 412 026 726

Governor

Governor design. : RQ750PA826-1 Governer no. : 0 421 801 366

Customer spec. information Customer : PERKINS

Engine : EAGLE LE

- 3...

TEST BENCH REQUIREMENTS

Test oil

inlet temp. °C : 38...42

Overflow valve

: 1 417 413 025

Inlet press., bar: 1.50

Test nozzle holder

assembly : 1 688 901 019

Opening

pressure, bar : 207...210

Orifice plate

diameter mm : 0,8

Test Lines : 1 680 750 075

Outside diameter

x Wall thickness

x Length mm : 8.00X2.50X1000

(A) Injection pump setting values Insp. values in parentheses Set equal delivery quant.

per values

BEGINNING OF DELIVERY

Test pressure, bar: 25...27

Prestroke mm : 3.50...3.60

: (3.45...3.65)

Rack travel in mm : 9.00...12.00

Firing order : 1-4-2-6-3-5

Phasing : 0-60-120-180-240-300

Tolerance $+ - \circ : 0.50 (0.75)$

Time to cyl. no. : 1

BASIC SETTING

1st speed rpm: 700

Rack travel in mm : 13.10...13.20

Del.quantity cm3/: 21.2...21.4

100 s: (20.9...21.7)

Spread cm3: 0.5

100 s: (0.9)

2nd speed rpm : 250.0 Rack travel in mm : 5.9...6.1

Del.quantity cm3/: 1.7...2.3 100 s: (1.4...2.6)

Spread cm3 : 0.8

100 s: (1.2)

FULL LOAD DELIV. AT FULL LOAD STOP

1st version

Speed rpm: 700

Del.quantity : 212.0...214.0 1000 : (209.0...217.0)

Spread cm3 : 5.00

1000 : (9.00)

RATED SPEED

1st version

Control lever

position degrees: 26...34

Testing:

1st rack travel in: 12.10

Speed rpm : 750...755

2nd rack travel in: 4.00

Speed rpm : 776...791

4th rack travel in: 900

Speed rpm : 0.00...1.00

START CUT-OUT

Speed 1/min: 690 (0)

BREAKAWAY

1st version 1mm rack travel less than

full load rack tr: 12.10 Speed rpm : 750...755 Speed

STARTING FUEL DELIVERY

Speed rpm : 100 Del.quantity cm3/ : 140.0...160.0 1000 s: (136.0...164.0)

Remarks:

APPLICATION

Generator

BOSCH INJ. PUMP TEST SPECIFICATIONS Prestroke mm : 4.30...4.40 : (4.25...4.45) Rack travel in mm : 9.00...12.00 Note remarks : 6-2-4-1-5-3 Firing order : MB 11,8 r : 05.07.91 Test sheet Edition : 31.3.89 Replaces : 0-60-120-180-240-300 : ISO-4113 Phasing Test oil Combination no. : 0 402 046 804 Tolerance + - ° : 0.50 (0.75) Time to cyl. no. : 6 Injection pump Pump designation : PES6P110A720LS3222 : 0 412 016 725 BASIC SETTING EP type number Governor Governor design. : RQ350/1100PA655-1 1st speed rpm : 1050 : 0 421 801 475 Governer no. Rack travel in mm : 8.80...8.90 Customer-spec. information Del.quantity cm3/: 10.3...10.5 : MERCEDES-BENZ Customer 100 s: (10.0...10.7) Engine : 0M447h : 132.0 Spread cm3 : 0.41st version kW : 2200 Rated speed 100 s: (0.8) TEST BENCH REQUIREMENTS rpm : 350.02nd speed Rack travel in mm: 5.9...6.5 Test oil Del.quantity cm3/: 1.4...2.0 inlet temp. °C : 38...42 100 s: (1.1...2.2) cm3 : 0.4 100 s: (0.8) Overflow valve Spread : 1 417 413 025 GUIDE SLEEVE POSITION Inlet press., bar: 1.50 Control-lever position Degree: -1 Overflow rpm : 600 quantity min. 1/h: 100...120 Speed Rack travel in mm : 13.00...14.00 Test nozzle holder FULL LOAD DELIV. AT FULL LOAD STOP : 0 681 343 009 assembly 1st version Opening | rpm : 1050 : 172...175 Speed pressure, bar : 103.0...105.0 Del.quantity 1000 : (100.5...107.5) : 1 680 750 015 : 4.00 Test lines cm3 Spread 1000 : (8.00) Outside diameter RATED SPEED x Wall thickness : 6.00x1.50x600 x Length mm 1st version (A) Injection pump setting values Insp. values in parentheses Set equal delivery quant. Setting point: Speed Rack travel in mm: 13.5 per values _ BEGINNING OF DELIVERY Testing:

1st rack travel in: 7.80

Speed

rpm : 1095...1110

Test pressure, bar: 25...27

2nd rack travel in: 4.00 Speed rpm : 1140...1170 4th rack travel in: 1300 Speed rpm : 0.00...1.50 LOW IDLE 1 Setting point w/out bumper spring rpm : 350 Rack travel in mm: 6.2 Testing: rpm : 200 Speed Minimum rack trave: 8.50 Speed rpm : 350
Rack travel in mm : 5.90...6.50
Rack travel in mm : 2.00 rom : 400...440 Speed TORQUE CONTROL Dimension a mm :? Torque control curve - 1st version 1st speed rpm : 1050 Rack travel in m: 8.80...8.90 2nd speed rpm : 800 Rack travel in m: 9.30...9.50 3rd speed rpm : 600 Rack travel in m: 9.70...9.90 FUEL DELIVERY CHARACTERISTICS 1st version Speed rpm : 600 Del.quantity cm3/: 94.0...98.0 1000 s: (91.0...101.0) cm3 : 6.00 Spread 1000 s: (9.00) RACK STOP ADJUSTMENT rpm : 600 Speed BREAKAWAY 1st version 1mm rack travel less than full load rack tr: 7.80 rom : 1095...1110 Speed STARTING FUEL DELIVERY Speed rpm : 100 Del.quantity cm3/: 130.0...150.0 1000 s: (126.0...154.0) Remarks:

Note remarks

: FIA 7,7 a : 26.07.91 : 17.9.90 Test sheet Edition Replaces : ISO-4113 Test oil

Combination no. : 0 402 046 815

Injection pump

Pump designation : PES6P120A720RS3249

: 0 412 026 737 EP type number

Governor

Governor design. : RQV300...1100PA954K Governer no. : 0 421 815 243

Customer-spec. information Customer : IVECO-FIAT

Engine : 8360.46.417

: 196.0 1st version kW Rated speed : 2200

TEST BENCH REQUIREMENTS

Test oil

inlet temp. °C : 38...42

Overflow valve

: 1 417 413 025

Inlet press., bar: 1.50

Test nozzle holder

: 1 688 901 105 assembly

Opening 1

: 207...210 pressure, bar

Orifice plate

diameter mm : 0,8

Test Lines : 1 680 750 008

Outside diameter x Wall thickness

: 6.00X2.00X600 x Length mm

(A) Injection pump setting values Insp. values in parentheses Set equal delivery quant.

per values

BEGINNING OF DELIVERY

Test pressure, bar: 25...27

: 3.50...3.60 Prestroke mm : (3.45...3.65)

Rack travel in mm : 9.00...12.00

: 1-5-3-6-2-4 Firing order

: 0-60-120-180-240-300 Phasing

: 0.50 (0.75) Tolerance + - °

Time to cyl. no. : 1

BASIC SETTING

rpm: 1100 1st speed

Rack travel in mm : 12.50...12.60

Del.quantity cm3/: 21.1...21.3

100 s: (20.8...21.6)

Spread cm3 : 0.5

100 s: (0.9)

rpm : 300.0 2nd speed Rack travel in mm: 4.0...4.4 Del.quantity cm3/: 2.0...2.6

100 s: (1.7...2.9) Spread cm3 : 0.8

100 s: (1.2)

(B) Setting of injection pump with governor

GUIDE SLEEVE TRAVEL

rpm : 1160 1st speed

: 10.60...10.80 travel mm

rpm : 300 2nd speed

: 1.00...1.40 travel mm

3rd speed rpm : 850

: 6.60...7.00 travel mm

rpm : 1350 4th speed

: 13.00...14.00 travel mm

GUIDE SLEEVE POSITION

Control-lever position

Degree: -1

rpm : 1150 Speed

Rack travel in mm : 15.20...17.80

FULL LOAD DELIV. AT FULL LOAD STOP

1st version

rpm : 1100 Speed

Aneroid pressure h: 1500

Del.quantity : 271.0...2,020 1000 : (208.0...216.0)

: 5.00 cm3Spread 1000 : (9.00)

RATED SPEED

1st version Control lever

position degrees: 117...125

Testing:

1st rack travel in: 11.60

rpm : 1140...1150 Speed

2nd rack travel in: 4.00

Speed rpm : 1215...1245 4th rack travel in: 1400 Speed rpm : 0.00...1.00

LOW IDLE 1 Control lever

position degrees: ?

Testing:

: 100 Speed rpm Minimum rack trave: 5.70 rpm : 300 Speed

Rack travel in mm : 4.10...4.30

Rack travel in mm : 2.00 Speed rpm : 330...390

TORQUE CONTROL

Dimension a mm : ?

Torque control curve - 1st version

rpm : 1100 1st speed

Rack travel in m: 12.50...12.60

rpm : 700 2nd speed

Rack travel in m: 11.40...11.70

: 300 3rd speed rpm

Rack travel in m: 9.00...9.30

Aneroid/Altitude Compensator Test

1st version

Settina

: 1100 Speed rpm Pressure hPa : 1500

Rack travel mm : 13.60...13.70

Measurement

1/min: 1100 Speed

1st pressure hPa : -

Rack travel in m: 8.90...9.10

2nd pressure hPa : 810

Rack travel in m: 12.40...12.50

3rd pressure hPa : 430

Rack travel in m: 10.00...10.30

START CUT-OUT

Speed 1/min: 240 (260)

FUEL DELIVERY CHARACTERISTICS

1st version

Aneroid pressure h: 1500 rpm : 700 Speed

Del.guantity cm3/: 182.0...188.0

1000 s: (179.0...191.0)

Aneroid pressure h: rpm : 500 Speed

Del.quantity cm3/: 96.0...98.0 1000 s: (93.0...101.0)

BREAKAWAY

1st version

1mm rack travel less than

full load rack tr: 11.60

Speed : 1140...1150 rpm

STARTING FUEL DELIVERY

Speed rpm : 100 Del.quantity cm3/ : 100.0...120.0 1000 s: (96.0...124.0)

LOW IDLE

: 300 Speed rpm

Rack travel in mm : 4.00...4.40 Del.quantity cm3/: 20.0...26.0 1000 s: (17.0...29.0)

cm3 : 8.00 Spread

1000 s: (12.00)

Remarks:

Setting and blocking of pointer of start-of-delivery sensor on cyl. 1

start of delivery

B₀₄

Note remarks

Test sheet Edition : UNI 9,5 h : 26.07.91

: 1.3.91 Replaces : ISO-4113 Test oil

Combination no. : 0 402 046 821

Injection pump

Pump designation : PES6P120A720RS3273

EP type number : 0 412 026 746

Governor

Governor design. : RQV450...1100PA989

Governer no. : 0 421 813 918

Customer-spec. information

Customer : IVECO-UNIC

Engine : 8465.21.004

TEST BENCH REQUIREMENTS

Test oil

inlet temp. °C : 38...42

Overflow valve

: 1 417 413 025

Inlet press., bar: 1.50

Test nozzle holder

assembly : 1 688 901 019

Opening

: 207...210 pressure, bar

Orifice plate

diameter mm : 0,8

: 1 680 750 075 Test Lines

Outside diameter

x Wall thickness

x Length mm : 8.00X2.50X1000

(A) Injection pump setting values Insp. values in parentheses Set equal delivery quant.

per values _

BEGINNING OF DELIVERY

Test pressure, bar: 25...27

: 3.50...3.60 Prestroke mm

: (3.45...3.65)

Rack travel in mm : 9.00...12.00

Firing order : 1-5-3-6-2-4

: 0-60-120-180-240-300 Phasing

Tolerance + - ° : 0.50 (0.75)

BASIC SETTING

1st speed rpm: 1100

Rack travel in mm : 9.90...10.00

Del.quantity cm3/: 15.5...15.7

100 s: (15.2...16.0)

Spread cm3 : 0.5

100 s: (0.9)

rpm : 400.0 2nd speed Rack travel in mm: 4.8...5.2 Del.quantity cm3/: 2.0...2.6 100 s: (1.7...2.9)

cm3 : 0.8 Spread

100 s: (1.2)

(B) Setting of injection pump with governor

GUIDE SLEEVE TRAVEL

rpm : 1145 1st speed : 7.90...8.10

travel mm : 450 2nd speed rpm

: 0.70...1.10 travel mm

: 650 3rd speed rpm

3.90...4.50 travel mm 950 4th speed rom

6.60...7.00 travel mm

: 1500 5th speed rpm

: 11.00...12.00 travel mm

GUIDE SLEEVE POSITION

Control-lever position Degree: -1

rpm : 1180 Speed

Rack travel in mm : 15.20...17.80

FULL LOAD DELIV. AT FULL LOAD STOP

1st version

rpm : 1100 Speed

: 155.0...157.0 Del.quantity

1000 : (152.0...160.0)

: 5.00 Spread cm3

1000 : (9.00)

RATED SPEED

1st version Control lever

position degrees: 117...125

Testing:

1st rack travel in: 8.90

Speed rpm: 1140...1150 2nd rack travel in: 4.00

Speed rpm : 1235...1265 4th rack travel in: 1400

rpm : 0.00...1.00 Speed

LOW IDLE 1

Control Lever

position degrees: 64...72

Testing:

: 100 Speed rpm Minimum rack trave: 6.50 rpm : 400 Speed

Rack travel in mm : 4.90...5.10

CONSTANT REGULATION

rpm : 450...580 Speed

BREAKAWAY

1st version 1mm rack travel less than

full load rack tr: 8.90

rpm : 1140...1150 Speed

STARTING FUEL DELIVERY

rpm : 100 Speed

Del.quantity cm3/: 125.0...145.0 1000 s: (121.0...149.0)

LOW IDLE

: 400 Speed rpm

Rack travel in mm : 4.80...5.20

Remarks:

Check electrically unlatched starting fuel delivery (EES) with 24 volt.

On activation of the starting solenoid, the start position must be reached.

Prestroke mm : 3.50...3.60 : (3.45...3.65) Rack travel in mm : 9.00...12.00 BOSCH INJ. PUMP TEST SPECIFICATIONS Prestroke mm Note remarks : 1-5-3-6-2-4 Firing order : RVI 9,8 p : 26.07.91 Test sheet Edition Replaces : 0-60-120-180-240-300 Test oil : ISO-4113 Phasing Tolerance + - ° : 0.50 (0.75) Combination no. : 0 402 046 824 BASIC SETTING Injection pump Pump designation : PES6P120A320RS3279 rpm: 700 : 0 412 026 748 1st speed EP type number Governor Governor design. : RQ275/1050PA999-1 Rack travel in mm : 11.20...11.30 : 0 421 801 586 Governer no. Del.quantity cm3/: 13.7...13.9 Customer-spec. information 100 s: (13.4...14.2) : RVI Customer cm3 : 0.5: MIHR 062045 A/3 Spread Engine 100 s: (0.9) : 191.0 1st version kW : 2100 Rated speed 2nd speed rpm : 275.0
Rack travel in mm : 5.4...5.8
Del.quantity cm3/ : 1.6...2.2 TEST BENCH REQUIREMENTS 100 s: (1.3...2.5) Test oil inlet temp. °C : 38...42 cm3 : 0.8Spread 100 s: (1.2) Overflow valve : 1 417 413 025 GUIDE SLEEVE POSITION Control-lever position Degree: -2 rpm : 600 Inlet press., bar: 1.50 Speed Rack travel in mm: 19.20...20.80 Test nozzle holder : 1 688 901 101 assembly FULL LOAD DELIV. AT FULL LOAD STOP Opening : 207...210 pressure, bar 1st version rpm : 700 Speed Aneroid pressure h: 1000 Orifice plate : 137.0...139.0 : 0,6 diameter mm Del.quantity 1000 : (134.0...142.0) cm3 : 5.00 1000 : (9.00) Spread : 1 680 750 008 Test Lines RATED SPEED Outside diameter x Wall thickness : 6.00x2.00x600 1st version x Length mm (A) Injection pump setting values Setting point: Insp. values in parentheses Speed rpm Set equal delivery quant. Rack travel in mm : 20.0 per values Testing: 1st rack travel in: 10.20 BEGINNING OF DELIVERY Speed rpm : 1130...1145 2nd rack travel in: 4.00 Test pressure, bar: 25...27

rpm : 1215...1245 Speed

4th rack travel in: 1350

rpm : 0.00...1.00 Speed

LOW IDLE 1

Setting point w/out bumper spring

rpm : 275 Rack travel in mm: 5.6

Testing:

: 200 Speed rpm Minimum rack trave: 6.40

man : 275

Rack travel in mm : 5.50...5.70

TORQUE CONTROL
Dimension a mm : -

Torque control curve - 1st version

1st speed rpm : 700
Rack travel in m: 0.40...0.50

2nd speed rpm : 1050

Rack travel in m: 0.30...0.50

Aneroid/Altitude Compensator Test

1st version

Setting

: 500 Speed rpm hPa : 1000 Pressure

Measurement

1/min: 500 Speed

1st pressure hPa : -

Rack travel in m: 9.50...9.70

2nd pressure hPa : 240

Rack travel in m: 10.70...10.80 3rd pressure hPa : 140

Rack travel in m: 9.90...10.10

START CUT-OUT

1/min: 195 (215) Speed

FUEL DELIVERY CHARACTERISTICS

1st version

Aneroid pressure h: 1000 Speed rpm : 1050 Del.quantity cm3/: 122.0...128.0 1000 s: (119.0...131.0)

Aneroid pressure h: 4-

Speed rpm : 500 Del.quantity cm3/: 107.0...109.0

1000 s: (104.0...112.0)

BREAKAWAY

1st version

1mm rack travel less than

full load rack tr: 10.20

rpm : 1130...1145 Speed

STARTING FUEL DELIVERY

Speed rpm : 100

Del.quantity cm3/: 185.0...205.0

1000 s: (181.0...209.0)

LOW IDLE

Speed rpm : 275
Rack travel in mm : 5.40...5.80
Del.quantity cm3/ : 16.0...22.0
1000 s: (13.0...25.0)

Spread cm3 : 8.00

1000 s: (12.00)

Remarks:

Setting and blocking of pointer of start-of-delivery sensor on cyl. 1 start of delivery

APPLICATION

Omnibus

Note remarks

Test sheet : MB 11,7 j 2 : 21.06.91 Edition

Replaces

Test oil : ISO-4113

Combination no. : 0 402 046 825

Injection pump

Pump designation : PES6P110A720LS3282

EP type number : 0 412 016 736

Governor

Governor design. : RQ300/1100PA800-2

: 0 421 801 593 Governer no.

Customer-spec. information

Customer : MERCEDES-BENZ

: 0M447 h Engine

: 157.0 1st version kW : 2200 Rated speed

TEST BENCH REQUIREMENTS

Test oil

inlet temp. °C : 38...42

Overflow valve

: 1 417 413 025

Inlet press., bar: 1.50

Overflow

quantity min. 1/h: 100...120

Test nozzle holder

: 0 681 343 009 assembly

Opening

: 172...175 pressure, bar

Test Lines : 1 680 750 015

Outside diameter x Wall thickness

: 6.00X1.50X600 x Lenath mm

(A) Injection pump setting values Insp. values in parentheses Set equal delivery quant.

per values

BEGINNING OF DELIVERY

Test pressure, bar: 25...27

Prestroke mm : 4.40...4.50 : (4.35...4.55) Rack travel in mm : 19.00...21.00

: 6-2-4-1-5-3 Firing order

Phasina : 0-60-120-180-240-300

Tolerance + - ° : 0.50 (0.75)

Time to cyl. no. : 6

BASIC SETTING

1st speed rpm: 1100

Rack travel in mm : 10.90...11.00

Del.guantity cm3/: 13.6...13.8

100 s: (13.3...14.0)

cm3 : 0.4Spread

100 s: (0.8)

2nd speed rpm : 300.0 Rack travel in mm : 7.2...7.4

Del.quantity cm3/: 1.4...2.0

100 s: (1.1...2.3)

cm3 : 0.4Spread

100 s: (0.8)

GUIDE SLEEVE POSITION Control-lever position

Degree: -1

Speed rpm: 600 Rack travel in mm: 13.00...14.00

FULL LOAD DELIV. AT FULL LOAD STOP

1st version

Spread

rpm : 1100 Speed

: 136.0...138.0 Del.quantity 1000 : (133.5...140.5)

: 4.00 cm3

1000 : (8.00)

RATED SPEED

1st version

Setting point:

: 600 Speed rpm

Rack travel in mm: 13.5

Testing:

1st rack travel in: 9.90

rpm : 1140...1150 Speed

2nd rack travel in: 4.00 Speed rpm : 1180...1210 4th rack travel in: 1250 rpm : 0.00...1.50 Speed LOW IDLE 1 Setting point w/out bumper spring Speed rpm : 300 Rack travel in mm : 7.3

Testing:

Speed rpm : 200 Minimum rack trave: 8.80

Speed rpm: 300
Rack travel in mm: 7.20...7.40
Rack travel in mm: 2.00 rpm : 370...410 Speed

FUEL DELIVERY CHARACTERISTICS

1st version

Speed rpm : 600 Del.quantity cm3/: 113.0...116.0

1000 s: (110.0...119.0) cm3 : 5.00 1000 s: (9.00) Spread

BREAKAWAY

1st version 1mm rack travel less than

full load rack tr: 9.90

rpm : 1140...1150 Speed

STARTING FUEL DELIVERY

rpm : 100 Speed

Del.quantity cm3/: 130.0...150.0 1000 s: (126.0...154.0)

Remarks:

BOSCH INJ. PUMP TEST SPECIFICATIONS Note remarks : MB 11,7 j 3 : 05.07.91 Test sheet Edition Replaces : ISO-4113 Test oil Combination no. : 0 402 046 826 Injection pump Pumo designation : PES6P110A720LS3282 EP type number : 0 412 016 736 Governor Governor design. : RQ300/1100PA786-2 : D 421 801 576 Governer no. Customer-spec. information : MERCEDES-BENZ Customer : 0M447 h Engine 1st version kW : 157.0 : 2200 Rated speed TEST BENCH REQUIREMENTS Test oil inlet temp. °C : 38...42 Overflow valve : 1 417 413 025 Inlet press., bar: 1.50 Overflow quantity min. 1/h: 100...120 Test nozzle holder assembly : 0 681 343 009 **Opening** pressure, bar : 172...175 : 1 680 750 015 Test lines

Outside diameter x Wall thickness : 6.00x1.50x600 x Length mm (A) Injection pump setting values Insp. values in parentheses Set equal delivery quant. per values BEGINNING OF DELIVERY Test pressure, bar: 25...27 B11

: 4.40...4.50 Prestroke mm : (4.35...4.55) Rack travel in mm : 19.00...21.00 Firing order : 6-2-4-1-5-3 : 0-60-120-180-240-300 Phasina Tolerance + - * : 0.50 (0.75) Time to cyl. no. : 6 BASIC SETTING 1st speed rpm: 1100 Rack travel in mm : 13.00...13.10 Del.quantity cm3/: 13.6...13.8 100 s: (13.3...14.0) cm3 : 0.4Spread 100 s: (0.8) 2nd speed rpm : 300.0 Rack travel in mm : 7.2...7.4 Del.quantity cm3/ : 1.4...2.0 100 s: (1.1...2.3) cm3 : 0.4Spread 100 s: (0.8) GUIDE SLEEVE POSITION Control-lever position Degree: -1 rpm : 600 Speed -Rack travel in mm : 13.50...14.50 FULL LOAD DELIV. AT FULL LOAD STOP 1st version rpm : 1100 Speed : 136.0...138.0 Del.quantity 1000 : (133.5...140.5) : 4.00 Spread cm3 1000 : (8.00) RATED SPEED 1st version Setting point: Speed rpm : 600 Rack travel in mm: 14.0 Testing: 1st rack travel in: 12.00 rpm : 1140...1150 Speed

2nd rack travel in: 4.00

Speed rpm : 1180...1210 4th rack travel in: 1250

rpm : 0.00...2.40 Speed

LOW IDLE 1

Setting point w/out bumper spring

Speed rpm : 300 Rack travel in mm : 7.3

Testing:

rpm : 200 Speed Minimum rack trave: 8,80 Speed rpm : 300 Rack travel in mm : 7.20...7.40

Rack travel in mm: 2.00 rpm : 370...410 Speed

FUEL DELIVERY CHARACTERISTICS

1st version

Speed rpm : 600 Del.quantity cm3/: 113.0...116.0 1000 s: (110.0...119.0)

Spread cm3 : 5.00 1000 s: (9.00)

BREAKAWAY

1st version 1mm rack travel less than

full load rack tr: 12.00

rpm : 1140...1150 Speed

STARTING FUEL DELIVERY

rpm_ : 100 Speed

Del.quantity cm3/: 130.0...150.0

1000 s: (126.0...154.0)

Remarks:

Note remarks

: RVI 9,8 q : 02.08.91 Test sheet Edition

Replaces

Test oil : ISO-4113

: 0 402 046 827 Combination no.

Injection pump

Pump designation : PES6P120A320RS3284 : 0 412 026 749 EP type number

Governor

Governor design. : RQ275/1050PA999-3 : 0 421 801 598 Governer no.

Customer-spec. information Customer

: MIDR/PR 062045 Engine

1st version kW : 186.0 : 2100 Rated speed

TEST BENCH REQUIREMENTS

Test oil

inlet temp. °C : 38...42

Overflow valve

: 1 417 413 025

Inlet press., bar: 1.50

Test nozzle holder

: 1 688 901 105 assembly

Opening

: 207...210 pressure, bar

Orifice plate

: 0,8 diameter mm

Test lines : 1 680 750 015

Outside diameter

x Wall thickness

: 6.00x1.50x600 x Length mm

(A) Injection pump setting values Insp. values in parentheses Set equal delivery quant. per values

BEGINNING OF DELIVERY

Test pressure, bar: 25...27

Prestroke mm : 3.50...3.60 : (3.45...3.65) Rack travel in mm : 9.00...12.00 Firing order : 1-5-3-6-2-4

Firing order

: 0-60-120-180-240-300 Phasing

Tolerance + - ° : 0.50 (0.75)

BASIC SETTING

1st speed rpm: 700

Rack travel in mm : 9.90...10.00

Del.guantity cm3/: 14.3...14.5

100 s: (14.0...14.8)

cm3 : 0.5Spread

100 s: (0.9)

2nd speed rpm : 275.0 Rack travel in mm : 4.3...4.7 Del.quantity cm3/: 1.5...2.1 100 s: (1.2...2.4)

cm3 : 0.8Spread 100 s: (1.2)

GUIDE SLEEVE POSITION Control-lever position

Degree: -2

Speed rpm: 600 Rack travel in mm: 19.20...20.80

FULL LOAD DELIV. AT FULL LOAD STOP

1st version

rpm : 700 Speed Aneroid pressure h: 1000

: 143.0...145.0 Del.quantity 1000 : (140.0...148.0)

: 5.00 cm3 Spread

1000 : (9.00)

RATED SPEED

1st version

Setting point:

speed rpm : 600 Rack travel in mm : 20.0

Testing:

1st rack travel in: 8.90

Speed rpm : 1130...1145 2nd rack travel in: 4.00

rpm : 1195...1225 Speed 4th rack travel in: 1350 rpm : 0.00...1.00 Speed

LOW IDLE 1

Setting point w/out bumper spring

Speed rpm : 275 Rack travel in mm : 5.4

Testing:

: 200 Speed rpm Minimum rack trave: 6.20 rpm : 275 Speed

Rack travel in mm : 4.40...4.60

TORQUE CONTROL

Dimension a mm : -

Torque control curve - 1st version

1st speed rpm : 700

Rack travel in m: 0.40...0.50

2nd speed rpm : 1050

Rack travel in m: 0.30...0.50

Aneroid/Altitude Compensator Test

1st version Setting

: 500 Speed rom hPa : 1000 Pressure

Rack travel mm : 9.90...10.00

Measurement

1/min: 500 Speed

1st pressure hPa : -

Rack travel in m: 8.70...8.90

2nd pressure hPa : 200

Rack travel in m: 9.40...9.50

3rd pressure hPa : 140

Rack travel in m: 9.00...9.20

START CUT-OUT

1/min: 195 (215) Speed

FUEL DELIVERY CHARACTERISTICS

1st version

Aneroid pressure h: 1000 Speed rpm : 1050 Del.quantity cm3/ : 140.0...146.0 1000 s: (137.0...149.0)

Aneroid pressure h: -

rpm : 500 Speed

Del.quantity cm3/: 100.0...102.0

1000 s: (97.0...105.0)

BREAKAWAY

1st version 1mm rack travel less than

full load rack tr: 8.90

rpm : 1130...1145 Speed

STARTING FUEL DELIVERY

Speed rpm

Del.quantity cm3/: 145.0...175.0 1000 s: (141.0...179.0)

LOW IDLE

Speed rpm : 275 Rack travel in mm : 4.30...4.70

Del.quantity cm3/: 15.0...21.0 1000 s: (12.0...24.0) Spread cm3 : 8.00

1000 s: (12.00)

Remarks:

Setting and blocking of pointer of start-of-delivery sensor on cyl. 1

start of delivery

APPLICATION

Omnibus

: 4.40...4.50 BOSCH INJ. PUMP TEST SPECIFICATIONS Prestroke mm : (4.35...4.55) Rack travel in mm : 19.00...21.00 Note remarks : 6-2-4-1-5-3 Firing order : MB 11,7 j 4 : 02.08.91 Test sheet Edition Replaces : 0-60-120-180-240-300 Test oil : ISO-4113 Phasina Combination no. : 0 402 046 831 Tolerance + - ° : 0.50 (0.75) Time to cyl. no. : 6 Injection pump Pump designation : PES6P110A720LS3282 EP type number : 0 412 016 736 BASIC SETTING Governor Governor design. : RQ300/1100PA1015 1st speed rpm: 1100 : 0 421 801 613 Governer no. Rack travel in mm: 13.00...13.10 Customer-spec. information Del.quantity cm3/: 13.6...13.8 : MERCEDES-BENZ Customer 100 s: (13.3...14.0) Engine : 0M447 h 1st version kW : 157.0 Spread cm3 : 0.4: 2200 Rated speed 100 s: (0.8) TEST BENCH REQUIREMENTS 2nd speed rpm : 300.0 Rack travel in mm : 7.2...7.4 Del.quantity cm3/: 1.4...2.0 Test oil inlet temp. °C : 38...42 100 s: (1.1...2.3) cm3 : 0.4 Overflow valve Spread : 1 417 413 025 100 s: (0.8) GUIDE SLEEVE POSITION Inlet press., bar: 1.50 Control-Lever position Degree: -1 Overflow quantity min. 1/h: 100...120 rpm : 600 Speed Rack travel in mm : 13.50...14.50 Test nozzle holder : 0 681 343 009 FULL LOAD DELIV. AT FULL LOAD STOP assembly 1st version Openina rpm : 1100 : 172...175 pressure, bar Speed 1000 : (133.5...140.5) Del.quantity : 1 680 750 015 cm3 : 4.00 Test Lines Spread 1000 : (8.00) Outside diameter x Wall thickness RATED SPEED : 6.00x1.50x600 x Length mm 1st version (A) Injection pump setting values Insp. values in parentheses Setting point: rpm : 600 Set equal delivery quant. Speed Rack travel in mm: 14.0 per values ____ BEGINNING OF DELIVERY Testina: 1st rack travel in: 12.00 Speed rpm : 1140...1150 Test pressure, bar: 25...27

2nd rack travel in: 4.00 Speed rpm : 1180...1210 4th rack travel in: 1250 Speed

Speed rpm : 0.00...2.40

LOW IDLE 1

Setting point w/out bumper spring

Speed rpm : 300 Rack travel in mm : 7.3

Testing:

Speed rpm: 200
Minimum rack trave: 8.80
Speed rpm: 300
Rack travel in mm: 7.20...7.40
Rack travel in mm: 2.00

: 370...410 Speed rpm

FUEL DELIVERY CHARACTERISTICS

1st version

Speed rpm : 600
Del.quantity cm3/: 113.0...116.0
1000 s: (110.0...119.0)
Spread cm3 : 5.00
1000 s: (9.00)

BREAKAWAY

1st version 1mm rack travel less than

full load rack tr: 12.00 Speed rpm : 1140...1150 Speed

STARTING FUEL DELIVERY

rpm : 100 Speed

Del.quantity cm3/: 130.0...150.0 1000 s: (126.0...154.0)

Remarks:

Note remarks

Test sheet : DEE 10,1 h : 31.07.91 : 24.8.89 Edition Replaces : ISO-4113 Test oil

Combination no. : 0 402 076 029

Injection pump

Pump designation : PES6P110A720RS337 EP type number : 0 412 016 044

Governor

Governor design. : RSV400...1050P0/416D

: 0 421 835 074 Governer no.

Customer-spec. information Customer : JOHN DEERE

: 6619 T Engine

TEST BENCH REQUIREMENTS

Test oil

inlet temp. °C : 38...43

Overflow valve

: 1 457 413 010

Inlet press., bar: 1.5

Test nozzle holder

: 0 681 343 009 assembly

Opening.

: 172...175 pressure, bar

: 9 681 230 706 Test lines

Outside diameter

x Wall thickness

x Length mm : 6,00x2,00x600

(A) Injection pump setting values Insp. values in parentheses Set equal delivery quant.

per values

BEGINNING OF DELIVERY

: 2,75...2,85 Prestroke mm

: (2,70...2,90) Rack travel in mm : 9,00...12,00

: 1-5-3-6-2-4 Firing order

: 0-60-120-180-240-300 Phasing

Tolerance + - * : 0,50 (0,75)

Time to cyl. no. : 1

BASIC SETTING

1st speed rpm: 1050

Rack travel in mm: 10,20

Del.guantity cm3/: 13,5...13,7

100 s: (-)

cm3 : 0.4Spread

100 s: (-)

2nd speed rpm : 400 Rack travel in mm : 6,00 Del.quantity cm3/: 2,1...2,7

100 s: (-) Spread cm3 : 0.4

100 s: (-)

GUIDE SLEEVE POSITION Control-lever position

Degree: -3 rpm : 800

Rack travel in mm : 0,30...0,70

Governor spring pre-tension

Click setting x : ?

FULL LOAD DELIV. AT FULL LOAD STOP

1st version

Speed rpm : 1050 Aneroid pressure h: 800

Del.quantity : 135,0...137,0 1000 : (-)

cm3Spread

1000

RATED SPEED

1st version Control lever

position degrees: 35...43

Testing:

1st rack travel in: 9,20

rpm : 1095...1105 Speed

2nd rack travel in: 9,20

rpm : 1090...1110 Speed

LOW IDLE 1 Control Lever

position degrees: 16...24 Setting point w/out bumper spring Speed rpm : 400 Rack travel in mm : 5,50 Testing: : 100 Speed rpm Minimum rack trave: 19,00 : 400 COM Rack travel in mm : 5,90...6,10 Rack travel in mm: 2,00 Speed rpm: 520...580 TORQUE CONTROL Torque control curve - 1st version 1st speed rpm : 750 Rack travel in m: 10,20 2nd speed rpm : 630 Rack travel in m: 10,70 Aneroid/Altitude Compensator Test 1st version Setting : 500 Speed rpm hPa : 246,5 Pressure : 9,85...9,95 Rack travel mm Measurement 1/min : 500 Speed 1st pressure hPa : 373,2 Rack travel in m: 10,30...10,50 FUEL DELIVERY CHARACTERISTICS 1st version Aneroid pressure h: 800 Speed rpm : 630
Del.quantity cm3/: 145,0...149,0
1000 s: (-) cm3 : 6,0 1000 s: (-) Spread Aneroid pressure h: -Speed rpm : 550 Del.quantity cm3/: 113,6...121,6 1000 s: (-) cm3 : 6,0Spread 1000 s: (-)

BREAKAWAY

1st version 1mm rack travel less than

full load rack tr: 9,20

: 1095...1105 Speed rom

STARTING FUEL DELIVERY

Speed rpm : 100 Del.quantity cm3/ : <190,0 1000 s: (-)

Rack travel in mm : 19,00...21,00

HIGH IDLE

1st version

Aneroid pressure h: 800 rpm : 1150 Rack travel in mm : 6,20

Del.quantity cm3/: 45,0...55,0 1000 s: (-)

cm3 : 6,0 1000 s: (-) Spread

LOW IDLE

Speed rpm : 400 Rack travel in mm: 6,00 Del.quantity cm3/: 20,8...26,8 1000 s: (-)

Remarks:

Start-of-delivery mark at 14° angular displacement of the cam after start of delivery of cylinder 1 with control-rod travel = 10.50 mm.

Note remarks

: DEE 7,7 g : 18.06.91 : 15.11.90 Test sheet Edition Replaces Test oil : ISO-4113

Combination no. : 0 402 076 733

Injection pump

Pump designation : PES6P110A720RS3224 EP type number : 0 412 016 726

Governor

: RSV475...1050P2A534-Governor design.

: 0 421 833 313 Governer no.

Customer-spec. information Customer : JOHN DEERE

Engine : 6101 AT 001

: 170.0 1st version kW : 2100 Rated speed

TEST BENCH REQUIREMENTS

Test oil

inlet temp. °C : 38...42

Overflow valve

: 1 457 413 010

Inlet press., bar: 1.50

Test nozzle holder

: 1 688 901 101 assembly

Opening

: 207...210 pressure, bar

Orifice plate

diameter mm : 0,6

Test lines : 1 680 750 015

Outside diameter x Wall thickness

x Length mm : 6.00x3.00x600

(A) Injection pump setting values Insp. values in parentheses Set equal delivery quant.

per values

BEGINNING OF DELIVERY

Test pressure, bar: 27...29

: 3.35...3.45 : (3.30...3.50) Prestroke mm

Rack travel in mm : 10.50

: 1-5-3-6-2-4 Firing order

: 0-60-120-180-240-300 Phasing

Tolerance $+ - ^{\circ} : 0.50 (0.75)$

Time to cyl. no. : 1

BASIC SETTING

1st speed rpm: 1050

Rack travel in mm : 13.20...13.30

Del.quantity cm3/: 15.8...16.0

100 s: (15.6...16.2)

cm3 : 0.4Spread

100 s: (0.6)

2nd speed rpm : 475.0
Rack travel in mm : 6.9...7.3
Del.quantity cm3/: 1.7...2.1
100 s: (1.5...2.4)
Spread cm3 : 0.6

100 s: (0.8)

GUIDE SLEEVE POSITION Control-lever position

Degree: -3 rom : 800

Rack travel in mm : 0.30...0.70

Governor spring pre-tension Click setting x : 3.00

FULL LOAD DELIV. AT FULL LOAD STOP

1st version

rpm : 1050Speed

Aneroid pressure h: 600

: 158.0...160.0 1000 : (156.0...162.0) Del.quantity

: 4.00 Spread cm3

1000 : (6.50)

RATED SPEED

1st version Control lever

position degrees: 37...45

Testing:

1st rack travel in: 12.20

rpm : 1090...1100 Speed

2nd rack travel in: 4.00

rpm : 1145...1155 Speed

3rd rack travel in: 4.00

Speed rpm : 1145...1175 4th rack travel in: 1300

rpm : 0.30...1.40Speed

LOW IDLE 1

Control Lever

position degrees: 16...24

Setting point w/out bumper spring

rpm : 475 Rack travel in mm: 4.2

Testing:

rpm : 100 Speed Minimum rack trave: 19.00

rpm : 475

Rack travel in mm : 4.60...4.80

TORQUE CONTROL

Torque control curve - 1st version

rpm : 1050 1st speed

Rack travel in m: 13.20...13.30

2nd speed rpm : 600

Rack travel in m: 13.90...14.10

Aneroid/Altitude

Compensator Test

1st version

Setting

: 500 Speed morn Pressure hPa : 600

Rack travel mm : 13.90...14.10

Measurement

1/min: 500 Speed

1st pressure hPa : -

Rack travel in m: 11.60...11.80

2nd pressure hPa : 300

Rack travel in m: 13.40...13.50

3rd pressure hPa : 160

Rack travel in m: 12.00...12.40

FUEL DELIVERY CHARACTERISTICS

1st version

Aneroid pressure h: 600

Speed rpm : 600 Del.quantity cm3/: 177.0...181.0

1000 s: (175.0...183.0)

Aneroid pressure h: -

Speed : 500 rpm

Del.quantity cm3/: 131.0...135.0

1000 s: (129.0...137.0)

1st version

BREAKAWAY

1mm rack travel less than

full load rack tr: 12.20

rpm : 1090...1100 Speed

STARTING FUEL DELIVERY

: 100 rpm

Del.quantity cm3/: 125.0...145.0 1000 s: (120.0...150.0)

Rack travel in mm : 19.00...21.00

LOW IDLE

Speed rpm : 475 Rack travel in mm : 4.60...4.80

Remarks:

: JOHN DEERE # RE39856

Adjust stop lever to 0.5...1.0 mm

before stop.

Start-of-delivery mark 10.5° cam angle after start of delivery cyl. 1

Adjustment without torque-control spring retainer with 0,5 mm less control-rod travel. Increase in

full-load delivery with torque-control spring retainer.

Note remarks

: MB 11,7 d 5 : 05.07.91 Test sheet Edition

Replaces

: ISO-4113 Test oil

: 0 402 076 734A Combination no.

Injection pump

Pump designation : PES6P110A820LS3131-1

: 0 412 016 717 EP type number

Governor

: RSV350...1100P0A487 Governor design.

: 0 421 833 316 Governer no.

Customer-spec. information

Customer : MERCEDES-BENZ

Engine : 0M447 C

1st version kW : 165.0 Rated speed : 2200

TEST BENCH REQUIREMENTS

Test oil

inlet temp. °C : 38...42

Overflow valve

: 1 417 413 025

Inlet press., bar: 1.50

Overflow

quantity min. 1/h: 100...120

Test nozzle holder

: 0 681 343 009 assembly

Opening

: 172...175 pressure, bar

: 1 680 750 015 Test Lines

Outside diameter

x Wall thickness

x Length mm : 6.00X1.50X600

(A) Injection pump setting values Insp. values in parentheses Set equal delivery quant.

per values

BEGINNING OF DELIVERY

Test pressure, bar: 25...27

: 4.30...4.40 Prestroke mm : (4.25...4.45)

Rack travel in mm : 9.00...12.00

: 6-2-4-1-5-3 Firing order

: 0-60-120-180-240-300 Phasing

Tolerance $+ - ^{\circ} : 0.50 (0.75)$

Time to cyl. no. : 6

BASIC SETTING

1st speed rpm: 1030

Rack travel in mm : 11.30...11.40

Del.guantity cm3/: 14.1...14.3

100 s: (13.8...14.5)

Spread cm3 : 0.4

100 s: (0.8)

rpm : 350.02nd speed

Rack travel in mm: 6.8...7.0 Del.quantity cm3/: 1.4...2.0

100 s: (1.1...2.3)

cm3 : 0.4 100 s: (0.7) Spread

GUIDE SLEEVE POSITION

Control-lever position

Degree: -3

rpm : 800

Rack travel in mm : 0.30...0.70

Governor spring pre-tension

Click setting x : ?

FULL LOAD DELIV. AT FULL LOAD STOP

1st version

rpm : 1030 Speed

: 141.0...143.0 Del.quantity

1000 : (138.5...145.5)

: 4.00 cm3 Spread

1000 : (8.00)

RATED SPEED

1st version

Control lever

position degrees: 95...103

Testing:

1st rack travel in: 10.30 rpm : 1080...1090 Speed 2nd rack travel in: 4.00 rpm : 1142...1160 Speed 4th rack travel in: 1350 rpm : 0.30...1.40 Speed LOW IDLE 1 Control Lever position degrees: 69...77 Setting point w/out bumper spring rpm : 350 Rack travel in mm: 6.9 Testina: Speed rpm: 100
Minimum rack trave: 19.50
Speed rpm: 350
Rack travel in mm: 6.80...7.00
Rack travel in mm: 2.00 rpm : 400...440 Speed SET IDLE AUXILIARY SPRING Rack travel in mm: 2.00 TORQUE CONTROL Torque control curve - 1st version 1st speed rpm : 1030
Rack travel in m: 11.30...11.40
2nd speed rpm : 850
Rack travel in m: 11.70...11.90 3rd speed rpm : 700 Rack travel in m: 12.30...12.50 FUEL DELIVERY CHARACTERISTICS 1st version Speed rpm : 700 Del.quantity cm3/ : 143.0...144.0 1000 s: (140.0...147.0) cm3 : 6.00Spread 1000 s: (9.00) **BREAKAWAY** 1st version 1mm rack travel less than

full load rack tr: 10.30 rpm : 1080...1090 Speed

STARTING FUEL DELIVERY

rpm : 100 Speed Del.quantity cm3/: 140.0...160.0 1000 s: (136.0...164.0) LOW IDLE

Speed rpm : 350 Rack travel in mm : 6.80...7.00 Del.quantity cm3/: 14.0...20.0 1000 s: (11.0...23.0)

cm3 : 4.50 Spread 1000 s: (7.00)

Remarks:

Note remarks

Test sheet : PER 16,3 b : 26.07.91 Edition : 19.3.91 Replaces : ISO-4113 Test oil

Combination no. : 0 402 638 803

Injection pump

Pump designation : PE8P120A120RS7141 EP type number : 0 412 628 823

Governor

Governor design. : RQ750PA871 : 0 421 801 404 Governer no.

Customer-spec. information : PERKINS Customer

: CV8-320 G Engine

TEST BENCH REQUIREMENTS

Test oil

inlet temp. °C : 38...42

Overflow valve

: 1 417 413 025

Inlet press., bar: 1.50

Test nozzle holder

: 1 688 901 019 assembly

Opening

: 207...210 pressure, bar

Orifice plate

diameter mm : 0,8

Test lines : 1 680 750 075

Outside diameter x Wall thickness

: 8.00x2.50x1000 x Length mm

(A) Injection pump setting values Insp. values in parentheses Set equal delivery quant. per values ____

BEGINNING OF DELIVERY

Test pressure, bar: 25...27

: 4.50...4.60 Prestroke mm : (4.45...4.65)

Rack travel in mm : 9.00...12.00

: 1-3-6-5-4-8-Firing order

Phasing : 0-45-90-135-180-225-

270-315

: 0.50 (0.75) Tolerance + - °

Time to cyl. no. : 1

BASIC SETTING

1st speed rbm: 700

Rack travel in mm : 14.40...14.50

Del.quantity cm3/: 33.3...33.5

100 s: (33.0...33.8)

Spread cm3 : 0.5

100 s: (0.9)

rpm : 300.0 2nd speed Rack travel in mm: 7.5...7.7 Del.quantity cm3/: 3.6...4.2

100 s: (3.3...4.5) cm3 : 0.8 Spread

100 s: (1.2)

FULL LOAD DELIV. AT FULL LOAD STOP

1st version

Speed rpm : 700

: 333.0...335.0 Del.quantity

1000 : (330.0...338.0)

: 5.00 cm3 Spread

1000 : (9.00)

RATED SPEED

1st version Control Lever

position degrees: 77...85

Testing:

1st rack travel in: 13.40 rpm : 750...755 Speed 2nd rack travel in: 4.00 : 783...798 Speed rpm

4th rack travel in: 900

rpm : 0.00...1.00Speed

BREAKAWAY

1st version

1mm rack travel less than

full load rack tr: 13.40 Speed rpm : 750...755

Remarks:

APPLICATION

Generator

Note remarks

: PER 16,3 d : 26.07.91 : 22.3.91 Test sheet Edition Replaces : ISO-4113 Test oil

Combination no. : 0 402 638 805

Injection pump

Pump designation : PE8P120A120RS7199 EP type number : 0 412 628 843

Governor

Governor design. : RQ750PA871 : 0 421 801 404 Governer no.

Customer-spec. information

: PERKINS (RR) Customer

: CV8-360 G Engine

TEST BENCH REQUIREMENTS

Test oil

inlet temp. °C : 38...42

Overflow valve

: 1 417 413 025

Inlet press., bar: 1.50

Test nozzle holder

: 1 688 901 019 assembly

Openina

pressure, bar : 207...210

Orifice plate

diameter mm : 0,8

: 1 680 750 075 Test Lines

Outside diameter

x Wall thickness

x Length mm : 8.00x2.50x1000

(A) Injection pump setting values Insp. values in parentheses Set equal delivery quant.

per values

BEGINNING OF DELIVERY

Test pressure, bar: 25...27

: 4.00...4.10 Prestroke mm : (3.95...4.15)

Rack travel in mm : 9.00...12.00

B25

: 1- 3- 6- 5- 4- 8-7- 2 Firing order

Phasing : 0-45-90-135-180-225-

270-315

Tolerance + - * : 0.50 (0.75)

Time to cyl. no. : 1

BASIC SETTING

1st speed rpm: 700

Rack travel in mm : 13.00...13.10

Del.quantity cm3/: 36.2...36.4

100 s: (35.9...36.7)

cm3 : 0.5Spread

100 s: (0.9)

rpm : 300.02nd speed Rack travel in mm : 4.9...5.1

Del.quantity cm3/: 3.6...4.2 100 s: (3.3...4.5)

cm3 : 0.8Spread

100 s: (1.2)

FULL LOAD DELIV. AT FULL LOAD STOP

1st version

rpm : 700 Speed

: 362.0...364.0 Del.quantity 1000 : (359.0...367.0)

Spread cm3 : 5.00

1000 : (9.00)

RATED SPEED

1st version

Control Lever

position degrees: 87...95

Testing:

1st rack travel in: 12.00

rpm : 750...755 Speed 2nd rack travel in: 4.00

Speed rpm : 773...788 4th rack travel in: 900

rom : 0.00...1.00Speed

BREAKAWAY

1st version

1mm rack travel less than

full load rack tr: 12.00 Speed rpm : 750...755

Remarks:

APPLICATION :

Generator

Note remarks

: MB 22,0 c 1 Test sheet : 21.06.91 Edition : 3.6.91 Replaces Test oil : ISO-4113

: 0 402 640 827 Combination no.

Injection pump

Pump designation : PE12P120A520LS7826

: 0 412 620 817 EP type number

Governor

: RQV350...1000PA870 Governor design.

-12

: 0 421 813 933 Governer no.

Customer-spec. information

: MERCEDES-BENZ Customer

: OM 444 LA Engine

: 550.0 : 2000 1st version kW Rated speed

TEST BENCH REQUIREMENTS

Test oil

inlet temp. °C : 38...42

Overflow valve

: 1 417 413 025

Inlet press., bar: 1.50

Overflow

quantity min. 1/h: 150...170

Test nozzle holder

: 1 688 901 019 assembly

Opening 1

: 207...210 pressure, bar

Orifice plate

diameter mm : 0,8

Test lines : 1 680 750 067

Outside diameter x Wall thickness

: 6.00x1.50x1000 x Length mm

(A) Injection pump setting values Insp. values in parentheses Set equal delivery quant.

per values

BEGINNING OF DELIVERY

Test pressure, bar: 25...27

Prestroke mm : 4.40...4.50 : (4.35...4.55)

Rack travel in mm : 19.00...21.00

: 12- 1- 5- 9- 8- 3-Firing order 4- 11- 10- 2- 6- 7

: 0-45-60-105-120-165-Phasing

180-225-240-285-300-

345

: 0.50 (0.75) Tolerance + - °

Time to cyl. no. : 12

BASIC SETTING

1st speed rpm: 1000

Rack travel in mm : 13.00...13.10

Del.quantity cm3/: 24.2...24.4

100 s: (23.9...24.7)

Spread cm3 : 0.6

100 s: (1.0)

2nd speed rpm : 350.0 Rack travel in mm : 5.3...5.9 Del.quantity cm3/ : 1.6...2.2 100 s: (1.3...2.5)

cm3 : 0.8Spread

100 s: (1.2)

(B) Setting of injection pump with governor

GUIDE SLEEVE TRAVEL

1st speed

rpm : 350 : 1.30...1.80 rpm : 740 travel mm

2nd speed

: 4.80...5.30 travel mm

rpm : 1058 3rd speed

: 8.30...8.80 travel mm

rpm : 1260 4th speed

: 11.00...12.00 travel mm

GUIDE SLEEVE POSITION Control-lever position

Degree: -1 rpm : 1125

Speed

Rack travel in mm : 15.20...17.80

FULL LOAD DELIV. AT FULL LOAD STOP

1st version

rpm : 1000 Speed Aneroid pressure h: 1600

: 242.0...244.0 Del.quantity

1000 : (239.0...247.0)

cm3 : 6.00 1000 : (10.00) Spread

RATED SPEED

1st version

Control lever

position degrees: 116...124

Testina:

1st rack travel in: 12.00

rpm : 1040...1050 Speed

2nd rack travel in: 4.00

Speed rpm : 1140...1170

4th rack travel in: 1200

rpm : 0.00...1.00Speed

LOW IDLE 1 Control Lever

position degrees: 62...70

Testing:

: 250 Speed rpm Minimum rack trave: 7.30 Speed rpm : 350

Rack travel in mm : 5.30...5.90

CONSTANT REGULATION

rom : 350...600 Speed

Aneroid/Altitude Compensator Test

1st version

Setting

: 500 Speed rpm hPa :-Pressure

Rack travel mm : 8.20...8.50

Measurement

1/min: 500 Speed

1st pressure hPa : 400

Rack travel in m: 9.40...9.60

2nd pressure hPa : 700

Rack travel in m: 11.00...11.20

START CUT-OUT

1/min: 310 (330) Speed

FUEL DELIVERY CHARACTERISTICS

1st version

Aneroid pressure h: 1600 : 750 Speed rom

Del.quantity cm3/: 233.0...238.0 1000 s: (230.0...241.0)

cm3 : 10.00 Spread

1000 s: (15.0)

Aneroid pressure h: -

Speed rpm : 500
Del.quantity cm3/: 124.0...126.0
1000 s: (121.0...129.0)

cm3 : 10.00 Spread

1000 s: (15.0)

BREAKAWAY

1st version

1mm rack travel less than

full load rack tr: 12.00

rpm : 1040...1050 Speed

STARTING FUEL DELIVERY

Speed rpm : 100 Del.quantity cm3/ : 330.0...350.0 1000 s: (326.0...354.0)

Remarks:

Note remarks

: MB 22,0 c 2 Test sheet : 21.06.91 Edition : 3.6.91 Replaces Test oil : ISO-4113

: 0 402 640 828 Combination no.

Injection pump

Pump designation: PE12P12OA520LS7826

: 0 412 620 817 EP type number

Governor

: RQV350...1050PA870 Governor design.

-13

: 0 421 813 934 Governer no.

Customer-spec. information

: MERCEDES-BENZ Customer

: OM 444 LA Engine

: 620.0 1st version kW : 2100 Rated speed

TEST BENCH REQUIREMENTS

Test oil

inlet temp. °C : 38...42

Overflow valve

: 1 417 413 025

Inlet press., bar: 1.50

Overflow

quantity min. 1/h: 150...170

Test nozzle holder

: 1 688 901 019 assembly

Opening |

pressure, bar : 207...210

Orifice plate

diameter mm : 0,8

: 1 680 750 067 Test lines

Outside diameter

x Wall thickness

x Length mm : 6.00X1.50X1000

(A) Injection pump setting values Insp. values in parentheses Set equal delivery quant.

per values ___

BEGINNING OF DELIVERY

Test pressure, bar: 25...27

: 4.40...4.50 Prestroke mm

: (4.35...4.55)

Rack travel in mm : 19.00...21.00 Firing order

: 12- 1- 5- 9- 8- 3-4- 11- 10- 2- 6- 7

Phasing : 0-45-60-105-120-165-

180-225-240-285-300-

345

: 0.50 (0.75) Tolerance + - °

Time to cyl. no. : 12

BASIC SETTING

rpm: 1050 1st speed

Rack travel in mm : 14.30...14.40

Del.quantity cm3/: 28.0...28.2

100 s: (27.7...28.5)

cm3 : 0.6Spread

100 s: (1.0)

2nd speed rpm : 350.0 Rack travel in mm : 5.3...5.9

Del.quantity cm3/: 1.6...2.2

100 s: (1.3...2.5)

cm3 : 0.8 Spread 100 s: (1.2)

(B) Setting of injection pump with governor

GUIDE SLEEVE TRAVEL

rpm : 350 1st speed

: 1.30...1.80 travel mm

570 2nd speed man

3.30...3.80 travel mm

: 900 3rd speed rpm

: 5.40...5.90 travel mm

: 1107 4th speed rom

: 7.80...8.30 travel mm

: 1204 5th speed man

: 9.80...10.30 travel mm

GUIDE SLEEVE POSITION Control-lever position

Degree: -1

rpm : 1175

Rack travel in mm : 15.20...17.80

FULL LOAD DELIV. AT FULL LOAD STOP 1st version rpm : 1050 Speed Aneroid pressure h: 1800 Del.quantity : 280.0...285.0) : 6.00 Spread cm3 1000 : (10.00) RATED SPEED 1st version Control lever position degrees: 114...122 Testina: 1st rack travel in: 13.30 Speed rpm : 1090...1100 2nd rack travel in: 4.00 rpm : 1170...1200 Speed 4th rack travel in: 1250 rom : 0.00...1.00Speed LOW IDLE 1 Control lever position degrees: 59...67 Testina: Speed rpm : 250 Minimum rack trave: 7.30 : 350 Speed rom Rack travel in mm : 5.30...5.90 CONSTANT REGULATION rpm : 350...600 Speed Aneroid/Altitude Compensator Test 1st version Setting : 500 Speed rom hPa : -Pressure : 8.20...8.50 Rack travel mm Measurement 1/min: 500 Speed

1st pressure hPa : 300 Rack travel in m: 9.60...9.70 2nd pressure hPa : 1100 Rack travel in m: 13.80...14.10 START CUT-OUT 1/min: 310 (330) Speed

FUEL DELIVERY CHARACTERISTICS

1st version Aneroid pressure h: 1800

Speed rpm : 750

Del.quantity cm3/: 278.0...282.0 1000 s: (275.0...285.0) Spread cm3 : 10.00

1000 s: (15.0)

Aneroid pressure h: rpm : 500 Speed

Del.quantity cm3/: 124.0...126.0 1000 s: (121.0...129.0)

cm3 : 10.00 Spread 1000 s: (15.0)

BREAKAWAY

1st version 1mm rack travel less than

full load rack tr: 13.30 rpm : 1090...1100 Speed

STARTING FUEL DELIVERY

Speed rpm : 100 Del.quantity cm3/ : 330.0...350.0 1000 s: (326.0...354.0)

Remarks:

CO2

Note remarks

: MB 22,0 c 3 Test sheet : 21.06.91 Edition : 3.6.91 Replaces : ISO-4113 Test oil

Combination no. : 0 402 640 829

Injection pump

Pump designation: PE12P12OA520LS7826 : 0 412 620 817 EP type number

Governor

Governor design.: RQV350...900PA870-14

: 0 421 813 935 Governer no.

Customer-spec. information

: MERCEDES-BENZ Customer

: OM 444 LA Engine

: 500.0 1st version kW : 1800 Rated speed

TEST BENCH REQUIREMENTS

Test oil

inlet temp. °C : 38...42

Overflow valve

: 1 417 413 025

Inlut press., bar: 1.50

Overflow

quantity min. 1/h: 150...170

Test nozzle holder

: 1 688 901 019 assembly

Openina

: 207...210 pressure, bar

Orifice plate

diameter mm : 0,8

Test lines : 1 680 750 067

Outside diameter x Wall thickness

: 6.00X1.50X1000 x Length mm

(A) Injection pump setting values Insp. values in parentheses Set equal delivery quant.

per values

BEGINNING OF DELIVERY

Test pressure, bar: 25...27

Prestroke mm

: 4.40...4.50 : (4.35...4.55)

Rack travel in mm : 19.00...21.00 Firing order

: 12- 1- 5- 9- 8- 3-4- 11- 10- 2- 6- 7

: 0-45-60-105-120-165-Phasing

180-225-240-285-300-

: 0.50 (0.75) Tolerance + - °

Time to cyl. no. : 12

BASIC SETTING

rpm: 900 1st speed

Rack travel in mm : 12.90...13.00

Del.quantity cm3/: 23.6...23.8

100 s: (23.3...24.1)

cm3 : 0.6Spread

100 s: (1.0)

rpm : 350.0 2nd speed

Rack travel in mm: 5.3...5.9 Del.quantity cm3/: 1.6...2.2

100 s: (1.3...2.5)

cm3 : 0.8Spread 100 s: (1.2)

(B) Setting of injection pump

with governor

GUIDE SLEEVE TRAVEL

rpm : 350 1st speed

: 1.30...1.80 travel mm

: 655 2nd speed rpm

: 4.80...5.30 travel mm

: 960 3rd speed rom

: 8.70...9.20 travel mm

: 1120 4th speed rpm

: 11.00...12.00 travel mm

GUIDE SLEEVE POSITION

Control-Lever position

Degree: -1 rpm : 1025

Rack travel in mm : 15.20...17.80

FULL LOAD DELIV. AT FULL LOAD STOP

1st version rpm : 900 Speed Aneroid pressure h: 1600 Del.quantity : 236.0...238.0 1000 : (233.0...241.0) : 6.00 Spread cm3 1000 : (10.00)

RATED SPEED

1st version Control Lever position degrees: 118...126

Testing: 1st rack travel in: 11.90 rpm : 940...950 Speed 2nd rack travel in: 4.00 rpm : 1010...1040 Speed 4th rack travel in: 1350 rpm : 0.00...1.00Speed

LOW IDLE 1 Control Lever

position degrees: 62...70

Testing: Speed rpm : 250 Minimum rack trave: 7.30 Speed rpm : 350 Rack travel in mm : 5.30...5.90

CONSTANT REGULATION rpm : 350...600 Speed

Aneroid/Altitude Compensator Test

1st version Setting Speed : 500 rpm hPa : -Pressure

: 8.20...8.50 Rack travel mm

Measurement 1/min: 500 Speed

1st pressure hPa : 400 Rack travel in m: 9.40...9.60 2nd pressure hPa : 700

Rack travel in m: 11.00...11.20

START CUT-OUT

1/min : 310 (330) Speed

FUEL DELIVERY CHARACTERISTICS

1st version

Aneroid pressure h: 1600 : 750 Speed rpm

Del.quantity cm3/: 228.0...232.0 1000 s: (225.0...235.0)

cm3 : 10.00 Spread 1000 s: (15.0) Aneroid pressure h:

Speed man

Speed rpm: 500
Del.quantity cm3/: 124.0...126.0
1000 s: (121.0...129.0)
Spread cm3: 10.00

1000 s: (15.0)

BREAKAWAY

1st version 1mm rack travel less than

full load rack tr: 11.90 rpm : 940...950 Speed

STARTING FUEL DELIVERY

: 100 Speed rom

Del.quantity cm3/: 330.0...350.0 1000 s: (326.0...354.0)

:

Remarks:

Note remarks

Test sheet : MAN 21,0 b3 : 21.06.91 Edition : 27.5.91 Replaces Test oil : ISO-4113

Combination no. : 0 402 640 830

Injection pump

Pump designation: PE12P12OA52OLS7824-2

EP type number : 0 412 620 816

Governor

Governor design. : RQV300...1150PA902-4

: 0 421 813 870 Governer no.

Customer-spec. information : MAN Customer

Engine : D2842LYE

: 735.0 1st version kW : 2300 Rated speed

TEST BENCH REQUIREMENTS

Test oil

inlet temp. °C : 38...42

Overflow valve

: 1 417 413 025

Inlet press., bar: 1.50

Test nozzle holder

: 1 688 901 019 assembly

Opening |

: 207...210 pressure, bar

Orifice plate

diameter mm : 0,8

: 1 680 750 067 Test Lines

Outside diameter

x Wall thickness

: 6.00x1.50x1000 x Length mm

(A) Injection pump setting values Insp. values in parentheses Set equal delivery quant.

per values

BEGINNING OF DELIVERY

Test pressure, bar: 25...27

Prestroke mm : 4.50...4.60 : (4.45...4.65)

Rack travel in mm : 9.00...12.00 Firing order

: 12- 1- 5- 9- 8- 3-4- 11- 10- 2- 6- 7

: 0-45-60-105-120-165-Phasing

180-225-240-285-300-

: 345 Phasina

: 0.50 (0.75) Tolerance + - °

Time to cyl. no. : 12

BASIC SETTING

rom: 1150 1st speed

Rack travel in mm : 13.60...13.70

Del.quantity cm3/: 30.1...30.3

100 s: (29.8...30.6)

cm3 : 0.5Spread

100 s: (0.9)

rpm : 500 2nd speed

Rack travel in mm: 9.1...9.3 Del.guantity cm3/: 14.9...15.1

100 s: (14.6...15.4)

cm3 : 0.8 Spread 100 s: (1.2)

3rd speed rpm : 300 Rack travel in mm : 7.20...7.40

Del.quantity cm3/ : 5.2...6.0 *

100 s: (-) cm3:

Spread 100 s: (-)

(B) Setting of injection pump

with governor

GUIDE SLEEVE TRAVEL

rpm : 300 1st speed

: 1.20...1.60 travel mm rpm : 450 2nd speed

: 2.90...3.50 travel mm

rpm : 750 3rd speed

: 5.60...6.00 travel mm

: 1150 4th speed rpm

: 9.50...9.70 travel mm

: 1400 5th speed rpm

: 13.00...14.00 travel mm

GUIDE SLEEVE POSITION Control-lever position

Degree: -1

Speed rpm : 1200 Rack travel in mm : 15.20...17.80 1/min: 220 (240) Speed FULL LOAD DELIV. AT FULL LOAD STOP FUEL DELIVERY CHARACTERISTICS 1st version 1st version Speed rpm : 1150 Aneroid pressure h: 1300 Del.quantity : 301.0...306.0) cm3 : 5.00 1000 : (9.00) Spread RATED SPEED 1st version BREAKAWAY Control lever 1st version position degrees: 118...126 Testing: 1st rack travel in: 12.60 rpm : 1190...1200 Speed Speed 2nd rack travel in: 4.00 Speed rpm : 1290...1320 4th rack travel in: 1400 rpm : 0.00...1.00Speed LOW IDLE 1 Control lever position degrees: 79...87 Speed Testina: rpm : 100 Speed Minimum rack trave: 8.90 rpm : 300 Speed Rack travel in mm : 7.30...7.50 HIGH IDLE Rack travel in mm: 2.00 rpm : 470...530 1st version Speed Speed Aneroid/Altitude Compensator Test 1st version Setting 2nd version : 500 Speed וחכרו hPa : 1300 Pressure Rack travel mm : 13.60...13.70 Measurement 1/min: 500 Speed 3rd version 1st pressure hPa : -Rack travel in m: 9.10...9.30 2nd pressure hPa : 100 Rack travel in m: 9.50...9.60 Speed 3rd pressure hPa : 470 Rack travel in m: 12.40...12.80 LOW IDLE START CUT-OUT

Aneroid pressure h: -1000 s: (12.0) 1mm rack travel less than full load rack tr: 12.60 rpm : 1190...1200 STARTING FUEL DELIVERY Speed rpm : 100 Del.quantity cm3/ : 100.0...120.0 * 1000 s: (-) rpm : 100 Del.quantity cm3/: - ** 1000 s: (-) Rack travel in mm: 17.5...21.0 Aneroid pressure h: rpm : 500 Rack travel in mm: <7.00 Del.quantity cm3/: - ** 1000 s: (-) Aneroid pressure h: rpm : 500 Rack travel in mm: < 7.50 Del.quantity cm3/: < 50.0 1000 s: (-) Aneroid pressure h: rpm : 500 Rack travel in mm : 8.40...8.60 Del.quantity cm3/: 125.0...200.0 1000 s: (-)

Speed rpm : 300 Rack travel in mm : 7.20...7.40 Del.quantity cm3/ : 52.0...60.0 * 1000 s: (-)

Remarks:

: MAN-NR. 2-7153

* applies to cylinders 4, 5, 6, 8,10 and 12 ** applies for cylinders 1, 2, 3, 7, 9 and 11

APPLICATION

Ship

Note remarks

: MAN 21,0 f1 Test sheet Edition : 26.07.91

Replaces

: ISO-4113 Test oil

: 0 402 640 832 Combination no.

Injection pump

Pump designation : PE12P120A520LS7824-3

EP type number : 0 412 620 829

Governor

Governor design. : RQV300...1050PA977-1

: 0 421 815 282 Governer no.

Customer-spec. information : MAN Customer

: D2842LE Engine

: 530.0 : 2100 1st version kW Rated speed

TEST BENCH REQUIREMENTS

Test oil

inlet temp. °C : 38...42

Overflow valve

: 1 417 413 025

Inlet press., bar: 1.50

Test nozzle holder

: 1 688 901 019 assembly

Opening

: 207...210 pressure, bar

Orifice plate

diameter mm : 0,8

Test Lines : 1 680 750 067

Outside diameter

x Wall thickness

: 6.00x1.50x1000 x Length mm

(A) Injection pump setting values Insp. values in parentheses Set equal delivery quant.

per values

BEGINNING OF DELIVERY

Test pressure, bar: 25...27

Prestroke mm : 4.50...4.60 : (4.45...4.65) Rack travel in mm : 9.00...12.00 Firing order : 12- 1- 5- 9- 8- 3-4- 11- 10- 2- 6- 7

: 0-45-60-105-120-165-Phasing

: 180-225-240-285-300-Phasing

Tolerance + - ° : 0.50 (0.75)

Time to cyl. no. : 12

BASIC SETTING

1st speed rpm : 1050

Rack travel in mm : 12.10...12.20

Del.quantity cm3/: 24.9...25.1

100 s: (24.6...25.4)

Spread cm3 : 0.5

100 s: (0.9)

rpm : 300.0 2nd speed

Rack travel in mm : 4.8...5.2

Del.quantity cm3/: 1.7...2.3 100 s: (1.4...2.6)

Spread cm3 : 0.8100 s: (1.2)

(B) Setting of injection pump

with governor

GUIDE SLEEVE TRAVEL

rpm : 1095 1st speed

10.10...10.30 travel mm

300 2nd speed rpm :

1.00...1.20 travel mm

rpm : 550 3rd speed

: 3.50...4.10 rpm : 900 travel mm

4th speed

: 7.40...7.80 travel mm

: 1350 5th speed **FDM**

: 13.00...14.00 travel mm

GUIDE SLEEVE POSITION Control-lever position

Degree: -1 rpm : 1100 Speed

Rack travel in mm : 15.20...17.80

FULL LOAD DELIV. AT FULL LOAD STOP

rpm : 1050 Speed Aneroid pressure h: 1300 : 249.0...251.0 Del.quantity 1000 : (246.0...254.0) cm3 : 5.00 Spread 1000 : (9.00) RATED SPEED 1st version Control lever position degrees: 295...303 Testing: 1st rack travel in: 11.10 Speed rpm : 1190...1200 2nd rack travel in: 4.00 speed rpm : 1150...1180 4th rack travel in: 1350 Speed LOW IDLE 1 Control Lever position degrees: 245...253 Testing: Speed : 100 rpm Minimum rack trave: 6.50 : 300 rom Rack travel in mm : 4.90...5.10 CONSTANT REGULATION rpm : 330...450 Speed TORQUE CONTROL Dimension a mm :? Torque control curve - 1st version 1st speed rpm : 1050 Rack travel in m: 12.10...12.20 2nd speed rpm : 700 Rack travel in m: 11.10...11.30
3rd speed rpm : 900
Rack travel in m: 11.50...11.70 Aneroid/Altitude Compensator Test 1st version Setting : 1050 Speed man hPa : 1300 Pressure : 12.10...12.20 Rack travel mm Measurement 1/min : 1050 Speed 1st pressure hPa : -Rack travel in m: 8.80...9.00

1st version

2nd pressure hPa : 250 Rack travel in m: 9.20...9.30 START CUT-OUT Speed 1/min: 240 (260) FUEL DELIVERY CHARACTERISTICS 1st version Aneroid pressure h: 1300 Speed rpm Del.quantity cm3/: 237.0...243.0 1000 s: (234.0...246.0) Aneroid pressure h: 1300 Speed rpm Del.quantity cm3/: 222.0...228.0 1000 s: (219.0...231.0) Aneroid pressure h: -Speed rpm : 500 Del.quantity cm3/: 144.0...146.0 1000 s: (141.0...149.0) **BREAKAWAY** 1st version 1mm rack travel less than full load rack tr: 11.10 rpm : 1190...1200 Speed STARTING FUEL DELIVERY rpm : 100 Speed Del.quantity cm3/: 255.0...275.0 1000 s: (251.0...279.0) LOW IDLE Speed rpm : 300 Rack travel in mm : 4.80...5.20 Del.quantity cm3/: 17.0...23.0 1000 s: (14.0...26.0) cm3 : 8.00 Spread 1000 s: (12.00) Remarks: : MAN-NR. 3-7149

Setting and blocking of pointer of start-of-delivery sensor on cyl. 12 start of delivery

Note remarks

: SAC 20,0 a Test sheet : 02.08.91 Edition

Replaces

: ISO-4113 Test oil

: 0 402 640 834 Combination no.

Injection pump

Pump designation : PE12P130A520RS7226-1

: 0 412 630 803 EP type number

Governor

: RQV300...930PA1005 Governor design.

Governer no. : 0 421 813 939

Customer-spec. information Customer : SACM

: UD23.V12 Engine

: 971.0 1st version kW Rated speed : 1860

TEST BENCH REQUIREMENTS

Test oil

inlet temp. °C : 40...45

Overflow valve

: 1 417 413 025

Inlet press., bar: 1.50

Test nozzle holder

: 1 688 901 019 assembly

Opening.

: 207...210 pressure, bar

Orifice plate

diameter mm : 0,8

: 1 680 750 075 Test Lines

Outside diameter x Wall thickness

x Length mm : 8.00x2.50x1000

(A) Injection pump setting values Insp. values in parentheses Set equal delivery quant.

per values

BEGINNING OF DELIVERY

Test pressure, bar: 25...27

: 4.00...4.10 : (3.95...4.15) Prestroke mm

Rack travel in mm : 9.00...12.00 Firing order : 1-8-5-10-3-7-6-11-2-9-4-12

: 0-15-60-75-120-135-Phasing 180-195-240-255-300-

: 315 Phasing

: 0.50 (0.75) Tolerance + - *

Time to cyl. no.

BASIC SETTING

rpm: 930 1st speed

Rack travel in mm : 11.50...11.60

Del.quantity cm3/: 37.4...37.7

100 s: (37.0...38.0)

Spread cm3 : 0.6

100 s: (1.0)

2nd speed rpm : 300.0 Rack travel in mm : 4.6...5.0

Del.quantity cm3/ : 3.2...3.8 100 s: (3.2...3.8)

(B) Setting of injection pump with governor

GUIDE SLEEVE TRAVEL

rpm : 975 1st speed

8.40...8.60 travel mm rpm : 300 2nd speed

: 1.50...1.90 travel mm

3rd speed : 600 man : 4.30...4.70 travel mm

: 1200 4th speed rpm

: 11.00...12.00 travel mm

GUIDE SLEEVE POSITION Control-lever position

Degree: -1

rpm : 960 Speed

Rack travel in mm : 15.20...17.80

FULL LOAD DELIV. AT FULL LOAD STOP

1st version

rpm : 930 Speed

: 374.0...377.0 Del.quantity

1000 : (370.5...380.5)

cm3 : 6.00Spread 1000 : (10.00) RATED SPEED 1st version Control lever position degrees: 117...125 Testing: 1st rack travel in: 10.50 Speed rpm : 970...980 2nd rack travel in: 4.00 rpm : 1025...1055 Speed 4th rack travel in: 1150 rpm : 0.00...1.00Speed LOW IDLE 1 Control lever position degrees: 65...73 Testing: rpm : 200 Speed Minimum rack trave: 6.30 Speed rpm : 300 Rack travel in mm : 4.70...4.90 CONSTANT REGULATION rpm : 300...420 Speed TORQUE CONTROL Dimension a mm : -Torque control curve - 1st version 1st speed rpm : 930 Rack travel in m: 10.50...10.60 2nd speed rpm : 600 Rack travel in m: 10.50...10.70 **BREAKAWAY** 1st version 1mm rack travel less than full load rack tr: 10.50 rpm : 970...980 Speed LOW IDLE Speed rpm : 300 Rack travel in mm : 4.60...5.00 Del.quantity cm3/ : 32.0...38.0 1000 s: (32.0...38.0)

Remarks:

Setting and blocking of pointer of start-of-delivery sensor on cyl. 1 start of delivery

APPLICATION

Navy

C11

Note remarks

Test sheet : MB 21,9 x 3 : 28.06.91 Edition

Replaces

: ISO-4113 Test oil

Combination no. : 0 402 640 835

Injection pump

Pump designation : PE12P12OA32OLS7807-4

EP type number : 0 412 620 830

Governor

Governor design. : RGV350...900PA870-15

: 0 421 813 944 Governer no.

Customer-spec. information

: MERCEDES-BENZ Customer

: OM 444 A Engine

: 375.0 1st version kW Rated speed : 1800

TEST BENCH REQUIREMENTS

Test oil

inlet temp. °C : 38...42

Overflow valve

: 1 417 413 025

Inlet press., bar: 1.50

Overflow

quantity min. 1/h: 150...170

Test nozzle holder

: 1 688 901 019 assembly

Opening

: 207...210 pressure, bar

Orifice plate

diameter mm : 0,8

Test Lines : 1 680 750 067

Outside diameter

x Wall thickness

: 6.00x1.50x1000 x Length mm

(A) Injection pump setting values Insp. values in parentheses Set equal delivery quant.

per values

BEGINNING OF DELIVERY

Test pressure, bar: 25...27

: 5.20...5.30 Prestroke mm

: (5.15...5.35)

Rack travel in mm : 9.00...12.00 Firing order

: 12- 1- 5- 9- 8- 3-4- 11- 10- 2- 6- 7

: 0-45-60-105-120-165-Phasing 180-225-240-285-300-

345

: 0.50 (0.75) Tolerance + - °

Time to cyl. no. : 12

BASIC SETTING

rpm: 900 1st speed

Rack travel in mm : 12.60...12.70

Del.quantity cm3/: 18.7,..18.9

100 s: (18.4...19.2)

cm3 : 0.5Spread

100 s: (0.9)

2nd speed rpm : 350.0 Rack travel in mm : 5.2...5.8 Del.quantity cm3/ : 1.6...2.2

100 s: (1.3...2.5)

cm3 : 0.8Spread 100 s: (1.2)

(B) Setting of injection pump with governor

GUIDE SLEEVE TRAVEL

rpm : 350 1st speed

: 1.30...1.80 travel mm

rpm : 655 2nd speed

: 4.80...5.30 travel mm

rpm : 960 3rd speed

: 8.70...9.20 travel mm

: 1120 4th speed rpm

travel mm : 11.00...12.00

GUIDE SLEEVE POSITION

Control-lever position

Degree: -1

rpm : 1025 Speed

Rack travel in mm : 15.20...17.80

FULL LOAD DELIV. AT FULL LOAD STOP

1st version

rpm : 900 Speed Aneroid pressure h: 1100

: 187.0...189.0 Del.quantity 1000 : (184.0...192.0)

cm3 : 5.00 Spread

1000 : (9.00)

RATED SPEED

1st version Control Lever

position degrees: 107...115

Testing:

1st rack travel in: 11.60 rpm : 940...950 Speed 2nd rack travel in: 4.00 rom : 1010...1040 Speed

4th rack travel in: 1250

Speed rpm : 0.00...1.00

LOW IDLE 1 Control lever

position degrees: 62...70

Testing:

Speed : 250 המיז Minimum rack trave: 6.80 Speed rpm : 350 Rack travel in mm : 5.20...5.80

CONSTANT REGULATION

rpm : 400...600 Speed

Aneroid/Altitude Compensator Test

1st version Setting

: 600 Speed rpm hPa : -Pressure

: 10.40...10.60 Rack travel mm

Measurement

Speed 1/min: 600

1st pressure hPa : 300 Rack travel in m: 10.80...11.00

2nd pressure hPa : 400

Rack travel in m: 11.80...12.00

START CUT-CUT

1/min: 270 (290) Speed

FUEL DELIVERY CHARACTERISTICS

1st version

Aneroid pressure h: -

Speed rpm : 500
Del.quantity cm3/: 136.0...138.0
1000 s: (133.0...141.0)

cm3 : 8.00 Spread

1000 s: (12.0)

BREAKAWAY

1st version

1mm rack travel less than

full load rack tr: 11.60

rpm : 940...950 Speed

STARTING FUEL DELIVERY

riom : 100

Del.quantity cm3/: 220.0...240.0

1000 s: (216.0...244.0)

Remarks:

Note remarks

: MB 11,0 t13 Test sheet : 21.06.91 Edition

Replaces

: ISO-4113 Test oil

Combination no. : 0 402 646 838T3

Injection pump

Pump designation : PE6P120A320LS7808 EP type number : 0 412 626 816

Governor

Governor design. : RQ300/1050PA762-4

: 0 421 801 390 Governer no.

Customer-spec. information

: MERCEDES-BENZ Customer

: 0M441 LA Engine

1st version kW : 240.0 : 2100 Rated speed

TEST BENCH REQUIREMENTS

Test oil

inlet temp. °C : 38...42

Overflow valve

: 1 417 413 025

Inlet press., bar: 1.50

Overflow

quantity min. 1/h: 100...120

Test nozzle holder

: 1 688 901 019 assembly

Opening.

: 207...210 pressure, bar

Orifice plate

diameter mm : 0,8

Test lines : 1 680 750 067

Outside diameter

x Wall thickness

: 6.00X1.50X1000 x Length mm

(A) Injection pump setting values Insp. values in parentheses Set equal delivery quant.

per values ____

BEGINNING OF DELIVERY

Test pressure, bar: 25...27

: 5.20...5.30 Prestroke mm

: (5.15...5.35)
Rack travel in mm : 20.00...21.00
Firing order : 6-3-5-2-4-1

: 0-60-120-180-240-300 Phasing

Tolerance $+ - \circ : 0.50 (0.75)$

Time to cyl. no. : 6

BASIC SETTING

rpm: 600 1st speed

Rack travel in mm : 13.90...14.10

Del.guantity cm3/: 21.4...21.6

100 s: (21.1...21.9)

cm3 : 0.5Spread

100 s: (0.9)

rpm : 300.0 2nd speed

Rack travel in mm : 5.6...6.2 Del.quantity cm3/ : 1.3...1.9

100 s: (1.0...2.2)

cm3 : 0.6Spread 100 s: (1.0)

GUIDE SLEEVE POSITION

Control-lever position Degree: -2

rpm : 600

Rack travel in mm : 19.20...20.80

FULL LOAD DELIV. AT FULL LOAD STOP

1st version

rpm : 600 Speed Aneroid pressure h: 900

Del.quantity : 214.0...219.0)

cm3 : 5.00 Spread

1000 : (9.00)

RATED SPEED

1st version

Setting point:

Speed rpm : 600 Rack travel in mm: 20.0

C14

1st rack travel in: 13.80 Speed rpm : 1095...1110 2nd rack travel in: 4.00 Speed rpm: 1155...1185 4th rack travel in: 1300 rom : 0.00...1.50Speed LOW IDLE 1 Setting point w/out bumper spring rpm Rack travel in mm: 5.9 Testing: Speed : 200 rpm Minimum rack trave: 7.90 Speed rpm : 300 Rack travel in mm : 5.60...6.20 Rack travel in mm : 2.00 : 380...420 Speed man TORQUE CONTROL : 0.30 Dimension a mm 2nd speed rpm : 1050 Rack travel in m: 14.80...15.00 rpm : 800 3rd speed Rack travel in m: 15.00...15.20 Aneroid/Altitude Compensator Test 1st version Setting Speed : 600 man hPa : 900 Pressure : 13.90...14.10 Rack travel mm Measurement 1/min: 600 Speed 1st pressure hPa : 300 Rack travel in m: 10.70...10.90 2nd pressure hPa : 550 Rack travel in m: 12.90...13.10 3rd pressure hPa : 1050 Rack travel in m: 14.00...14.10 * 4th pressure hPa : 1150 Rack travel in m: 14.40...14.70 5th pressure hPa : Rack travel in m: 9.50...9.80 START CUT-OUT 1/min: 220 (240) Speed FUEL DELIVERY CHARACTERISTICS

Testing:

1st version Aneroid pressure h: 1450 : 1050 Speed rom Speed rpm: 1000 Del.quantity cm3/: 236.0...239.0 1000 s: (233.0...242.0) Spread cm3 : 8.001000 s: (12.0) Aneroid pressure h: 1450 : 800 Speed rpm Del.quantity cm3/: 243.0...247.0 1000 s: (240.0...250.0) Spread cm3 : 8.00 1000 s: (12.0) Aneroid pressure h: -Speed rpm : 500 Del.quantity cm3/: 145.0...147.0 1000 s: (142.0...150.0) cm3 : 8.00 Spread 1000 s: (12.0)

BREAKAWAY

1st version 1mm rack travel less than

full load rack tr: 13.80 Speed rpm : 1095...1110

STARTING FUEL DELIVERY

Speed rpm : 100 Del.quantity cm3/ : 200.0...220.0 1000 s: (196.0...224.0)

Remarks:

* Increase in control-rod travel with respect to setting at least 0.1 mm

Note remarks

: VOL 16.0 c1 : 28.06.91 : 31.8.90 Test sheet Edition Replaces : ISO-4113 Test oil

: 0 402 646 877 Combination no.

Injection pump

Pump designation : PE6P130A720RS7122-1

: 0 412 636 812 EP type number

Governor

Governor design. : RQV225...930PA922

: 0 421 813 763 Governer no.

Customer-spec, information

Customer : VOLVO-TRUCK

: TD162 FL, FJ, Engine

: 331.0 1st version kW : 1860 Rated speed

TEST BENCH REQUIREMENTS

Test oil

inlet temp. °C : 38...42

Overflow valve

: 1 417 413 025

Inlet press., bar: 1.50

Test nozzle holder

: 1 688 901 019 assembly

Opening |

: 207...210 pressure, bar

Orifice plate

diameter mm : 0.8

Test Lines : 1 680 750 067

Outside diameter x Wall thickness

: 6.00x1.50x1000 x Length mm

(A) Injection pump setting values Insp. values in parentheses

Set equal delivery quant. per values

BEGINNING OF DELIVERY

Test pressure, bar: 25...27

: 3.60...3.70 Prestroke mm

: (3.55...3.75) Rack travel in mm : 9.00...12.00

: 1-5-3-6-2-4 Firing order

: 0-60-120-180-240-300 Phasing

: 0.30 (0.75) Tolerance + - °

Time to cyl. no. : 1

BASIC SETTING

rpm: 700 1st speed

Rack travel in mm: 13.50...13.60

Del.quantity cm3/: 30.1...30.4

100 s: (29.7...30.7)

Spread cm3 : 0.6

100 s: (1.0)

rpm : 250.0 2nd speed Rack travel in mm : 4.9...5.1 Del.quantity cm3/ : 2.5...3.0

100 s: (2.3...3.3)

cm3 : 0.5Spread 100 s: (0.8)

(B) Setting of injection pump with governor

GUIDE SLEEVE TRAVEL

rpm : 250 1st speed

travel mm : 1.00...1.40 : 350 2nd speed

rpm : 2.10...2.70 travel mm

: 700 3rd speed rpm

5.60...6.20 travel mm

975 4th speed man

: 8.20...8.40 travel mm

: 1090 5th speed rpm : 9.50...9.90 travel mm

GUIDE SLEEVE POSITION

Control-lever position

Degree: -1

rpm : 1100 Speed

Rack travel in mm : 7.70...10.30

FULL LOAD DELIV. AT FULL LOAD STOP

1st version

Speed rpm : 700

Aneroid pressure h: 1200

Del.quantity : 301.0...304.0 1000 : (297.5...307.5)

cm3 : 6.00 Spread

1000 : (10.00)

RATED SPEED

1st version Control lever

position degrees: 116...124

Testing:

1st rack travel in: 12.50 rpm : 970...980 Speed

2nd rack travel in: 4.00

rpm : 1090...1120 Speed

4th rack travel in: 1200

rpm : 0.00...1.00 Speed

LOW IDLE 1 Control lever

position degrees: 60...68

Testing:

Speed : 100 man Minimum rack trave: 6.50 rpm

Rack travel in mm : 4.90...5.10

CONSTANT REGULATION

rpm : 250...450 Speed

Aneroid/Altitude Compensator Test

1st version Settina

: 500 Speed rpm hPa : 1200 Pressure

: 13.50...13.60 Rack travel mm

Measurement

1/min: 500 Speed

1st pressure hPa :-

Rack travel in m: 9.50...9.70

2nd pressure hPa : 85

Rack travel in m: 9.70...9.80

3rd pressure hPa : 720

Rack travel in m: 13.00...13.20

FUEL DELIVERY CHARACTERISTICS

1st version

Aneroid pressure h: -

Speed rpm : 700 Del.quantity cm3/: 181.0...184.0 1000 s: (177.5...187.5)

BREAKAWAY

1st version 1mm rack travel less than

full load rack tr: 12.50 Speed rpm : 970...980 Speed

STARTING FUEL DELIVERY

rpm : 100 Speed

Del.quantity cm3/: 120.0...140.0 1000 s: (116.0...144.0)

Rack travel in mm : 9.50...9.70

LOW IDLE

Speed rpm : 250
Rack travel in mm : 4.90...5.10
Del.quantity cm3/: 25.5...30.5
1000 s: (23.0...33.0)

cm3 : 5.00Spread 1000 s: (8.00)

Remarks:

Delivery-valve spring pre-tension 3.2...3.4 mm.

Permissible alteration of 3.0...3.5 mm

Because of flattening, set the spring preload on new delivery-valve holders to 2.9...3.1 mm.

Note remarks

: MB 9,6 q : 26.07.91 Test sheet Edition : 3.6.91 Replaces Test oil : ISO-4113

: 0 402 646 915 Combination no.

Injection pump

Pump designation : PE6P120A320LS7836 : 0 412 626 840 EP type number

Governor

Governor design. : RQ300/1050PA972 : 0 421 801 542 Governer no.

Customer-spec. information

Customer : MERCEDES-BENZ

: 0M401 LA Engine

: 200.0 1st version kW 2100 Rated speed

TEST BENCH REQUIREMENTS

Test oil

inlet temp. °C : 38...42

Overflow valve

: 1 417 413 025

Inlet press., bar: 1.50

Overflow

quantity min. 1/h: 100...120

Test nozzle holder

: 1 688 901 105 assembly

Opening 1 4 1

: 207...210 pressure, bar

Orifice plate

diameter mm : 0,8

: 1 680 750 075 Test lines

Outside diameter x Wall thickness

: 8.00x1.50x1000 x Length mm

(A) Injection pump setting values Insp. values in parentheses Set equal delivery quant.

per values ____

BEGINNING OF DELIVERY

Test pressure, bar: 25...27

: 5.50...5.60 Prestroke mm

: (5.45...5.65) Rack travel in mm : 20.00...21.00

: 6-3-5-2-4-1 Firing order

Phasing : 0-60-120-180-240-300

Tolerance + - ° : 0.50 (0.75)

Time to cyl. no. : 6

BASIC SETTING

rpm: 600 1st speed

Rack travel in mm : 12.40...12.60

Del.guantity cm3/: 18.2...18.4

100 s: (17.9...18.7)

Spread cm3 : 0.5

100 s: (0.9)

rpm : 300.0 2nd speed

Rack travel in mm: 5.5...5.8

Del.quantity cm3/: 1.6...2.2

100 s: (1.3...2.5) cm3 : 0.6

Spread 100 s: (1.0)

GUIDE SLEEVE POSITION Control-lever position

Degree: -2

rom : 600 Speed Rack travel in mm : 19.20...20.80

FULL LOAD DELIV. AT FULL LOAD STOP

1st version

rpm : 600 Speed

Aneroid pressure h: 800

Del.quantity : 182.0...187.0)

cm3 : 5.00 Spread

1000 : (9.00)

RATED SPEED

1st version

Setting point:

: 600 rpm Rack travel in mm: 20.0

Testing: 1st rack travel in: 12.10 rpm : 1090...1165 Speed 2nd rack travel in: 4.00 rpm : 1165...1195 Speed 4th rack travel in: 1300 rpm : 0.00...1.50 Speed LOW IDLE 1 Setting point w/out bumper spring : 300 rpm Rack travel in mm: 5.6 Testing: Speed rpm Minimum rack trave: 7.50 rpm : 300 Speed Rack travel in mm : 5.50...5.80 Rack travel in mm : 2.00 : 380...420 Speed rpm Aneroid/Altitude Compensator Test 1st version Setting Speed mon : 600 hPa : 800 Pressure Rack travel mm : 12.40...12.60 Measurement 1/min: 600 Speed 1st pressure hPa : 250
Rack travel in m: 10.20...10.40
2nd pressure hPa : 500
Rack travel in m: 11.60...11.80 3rd pressure hPa : 1000 Rack travel in m: 12.60...12.80 4th pressure hPa : 1150 Rack travel in m: 12.90...13.10 5th pressure hPa : -Rack travel in m: 9.50...9.80 FUEL DELIVERY CHARACTERISTICS 1st version Aneroid pressure h: 1400 Speed rpm : 1050 Del.quantity cm3/ : 201.0...204.0 1000 s: (198.0...207.0)

cm3 : 8.00

1000 s: (12.0)

Del.quantity cm3/: 202.0...206.0 1000 s: (199.0...209.0)

: 800

Aneroid pressure h: 1400 rpm

Spread cm3 : 8.001000 s: (12.0) Aneroid pressure h: -: 500 Speed rpm Del.quantity cm3/: 122.0...124.0 1000 s: (119.0...127.0) cm3 : 8.00 Spread 1000 s: (12.0)

BREAKAWAY

1st version 1mm rack travel less than

full load rack tr: 12.10 rpm : 1090...1105 Speed

STARTING FUEL DELIVERY

: 100 rpm Rack travel in mm : 9.50...9.80

Remarks:

Spread

Note remarks

Test sheet : MB 9,6 r : 05.07.91 Edition : 3.5.91 Replaces Test oil : ISO-4113

Combination no. : 0 402 646 916

Injection pump

Pump designation : PE6P120A320LS7836 : 0 412 626 840 EP type number

Governor

: RQV300...1050PA797 Governor design.

-17

: 0 421 813 884 Governer no.

Customer-spec. information

: MERCEDES-BENZ Customer

: 0M401 LA Engine

: 200.0 1st version kW Rated speed : 2100

TEST BENCH REQUIREMENTS

Test oil

: 38...42 inlet temp. °C

Overflow valve

: 1 417 413 025

Inlet press., bar: 1.50

Overflow

quantity min. 1/h: 100...120

Test nozzle holder

: 1 688 901 105 assembly

Opening |

: 207...210 pressure, bar

Orifice plate

diameter mm : 0,8

Test lines : 1 680 750 075

Outside diameter

x Wall thickness

x Length mm : 8.00x1.50x1000

(A) Injection pump setting values Insp. values in parentheses Set equal delivery quant.

per values

BEGINNING OF DELIVERY

Test pressure, bar: 25...27

: 5.50...5.60 Prestroke mm

: (5.45...5.65) Rack travel in mm : 20.00...21.00

: 6-3-5-2-4-1 Firing order

: 0-60-120-180-240-300 Phasing

Tolerance + - ° : 0.50 (0.75)

Time to cyl. no. : 6

BASTC SETTING

1st speed rpm: 600

Rack travel in mm : 12.40...12.60

Del.guantity cm3/: 18.2...18.4

100 s: (17.9...18.7)

cm3 : 0.5Spread

100 s: (0.9)

rpm : 300.0 2nd speed Rack travel in mm: 5.4...5.9

Del.quantity cm3/: 1.6...2.2 100 s: (1.3...2.5)

cm3 : 0.6 Spread 100 s: (1.0)

(B) Setting of injection pump with governor

GUIDE SLEEVE TRAVEL

1st speed rpm : 300

: 1.00...1.50 travel mm

rpm : 6002nd speed

: 4.80...5.30 travel mm : 820

3rd speed rpm

: 5.90...6.40 travel mm

rpm : 1107 4th speed

: 8.30...8.80 travel mm

rpm : 7183 5th speed : 9.80...10.30 travel mm

GUIDE SLEEVE POSITION

Control-lever position

Degree: -1 rpm : 1125 Speed

Rack travel in mm : 15.20...17.20

FULL LOAD DELIV. AT FULL LOAD STOP

1st version rpm : 600 Speed Aneroid pressure h: 800 1000 : (179.0...184.0 1000 : (179.0...187.0) Del.quantity : 5.00 cm3 Spread 1000 : (9.00) RATED SPEED 1st version Control lever position degrees: 118...126 Testing: 1st rack travel in: 12.10 Speed rpm : 1090...1100 2nd rack travel in: 4.00 rpm : 1165...1195 Speed 4th rack travel in: 1300 Speed rpm : 0.00...1.00LOW IDLE 1 Control lever position degrees: 80...88 Testing: Speed rom Minimum rack trave: 7.60 : 300 Speed rom Rack travel in mm : 5.40...5.90 CONSTANT REGULATION Speed rpm : 300...500 Aneroid/Altitude Compensator Test 1st version Setting : 600 Speed **TOM** hPa : 800 Pressure : 12.40...12.60 Rack travel mm Measurement 1/min: 600 Speed 1st pressure hPa : 350
Rack travel in m: 12.20...12.40
2nd pressure hPa : 500
Rack travel in m: 11.60...11.80
3rd pressure hPa : 1000
Rack travel in m: 12.60...12.80
4th pressure hPa : 1150
Rack travel in m: 12.90...13.10

START CUT-OUT $1/\min : 240 (260)$ Speed FUEL DELIVERY CHARACTERISTICS 1st version Aneroid pressure h: 1400 Speed rpm : 1050 Del.quantity cm3/: 201.0...204.0 1000 s: (198.0...207.0) cm3 : 8.00 Spread 1000 s: (12.0) Aneroid pressure h: 1400 : 800 Speed rpm Del.quantity cm3/: 202.0...206.0 1000 s: (199.0...209.0) cm3 : 8.00 Spread 1000 s: (12.0) Aneroid pressure h: -Speed rpm : 500
Del.quantity cm3/: 122.0...124.0
1000 s: (119.0...127.0)
Spread cm3 : 8.00 1000 s: (12.0) **BREAKAWAY** 1st version 1mm rack travel less than full load rack tr: 12.10 Speed rpm : 1090...1100 STARTING FUEL DELIVERY Speed rpm : 100 Del.quantity cm3/ : 200.0...220.0 1000 s: (196.0...224.0) Remarks:

5th pressure hPa

: -Rack travel in m: 10.00...10.30

Note remarks

Test sheet : MB 11,1 c : 28.06.91 Edition : 28.3.91 Replaces Test oil : ISO-4113

: 0 402 646 921 Combination no.

Injection pump

Pump designation : PE6P120A320LS7837 EP type number : 0 412 626 842

Governor

Governor design: RQ300/1050PA972-3

: 0 421 801 565 Governer no.

Customer-spec. information

: MERCEDES-BENZ Customer

: 0M441 LA Engine

: 250.0 1st version kW : 2100 Rated speed

TEST BENCH REQUIREMENTS

Test oil

inlet temp. °C : 38...42

Overflow valve

: 1 417 413 025

Inlet press., bar: 1.50

Overflow

quantity min. 1/h: 100...120

Test nozzle holder

: 1 688 901 019 assembly

Opening

: 207...210 pressure, bar

Orifice plate

diameter mm : 0,8

Test lines : 1 680 750 067

Outside diameter

x Wall thickness

: 6.00x1.50x1000 x Length mm

(A) Injection pump setting values Insp. values in parentheses Set equal delivery quant.

per values

BEGINNING OF DELIVERY

Test pressure, bar: 25...27

: 5.20...5.30 Prestroke mm : (5.15...5.35)

Rack travel in mm : 20.00...21.00

: 6-3-5-2-4-1 Firing order

: 0-60-120-180-240-300 Phasing

Tolerance + - ° : 0.50 (0.75)

Time to cyl. no. : 6

BASIC SETTING

1st speed rom: 600

Rack travel in mm : 14.70...14.90

Del.quantity cm3/: 23.4...23.6

100 s: (23.1...23.9)

cm3 : 0.5Spread

100 s: (0.9)

2nd speed rpm : 300.0 Rack travel in mm : 5.6...6.2 Del.quantity cm3/ : 1.6...2.2 100 s: (1.3...2.5)

cm3 : 0.6 Spread 100 s: (1.0)

GUIDE SLEEVE POSITION Control-lever position

Degree: -2

rpm : 600 Speed Rack travel in mm : 19.20...20.80

FULL LOAD DELIV. AT FULL LOAD STOP

1st version

rpm : 600 Speed Aneroid pressure h: 1000

Aneroiu p. ... Del.quantity 1000 : 234.0...236.0 : (231.0...239.0)

: 5.00 Spread cm3

1000 : (9.00)

RATED SPEED

1st version

Setting point:

Speed : 600 rpm Rack travel in mm : 20.0

Testina: 1st rack travel in: 13.90 rpm : 1090...1105 Speed 2nd rack travel in: 4.00 rpm : 1185...1215 Speed 4th rack travel in: 1300 Speed rpm : 0.00...1.50LOW IDLE 1 Setting point w/out bumper spring Speed rpm : 300 Rack travel in mm : 5.9 Testing: Speed : 200 rpm Minimum rack trave: 7.70 : 300 Speed rpm Rack travel in mm : 5.60...6.20 Rack travel in mm : 2.00 Speed rpm : 380...420 TORQUE CONTROL Dimension a mm : ? : 1050 2nd speed rpm Rack travel in m: 14.90...15.10 3rd speed rpm : 800 Rack travel in m: 15.50...15.70 Aneroid/Altitude Compensator Test 1st version Setting : 600 Speed man hPa : 1000 Pressure Rack travel mm : 14.70...14.90 Measurement 1/min: 600 Speed 1st pressure hPa : 200 Rack travel in m: 10.00...10.20 2nd pressure hPa : 600
Rack travel in m: 12.50...12.70
3rd pressure hPa : 1250
Rack travel in m: 14.80...15.00 *
4th pressure hPa : 1400 Rack travel in m: 15.30...15.50 5th pressure hPa : -Rack travel in m: 9.30...9.50 FUEL DELIVERY CHARACTERISTICS 1st version

Del.quantity cm3/: 235.0...238.0 1000 s: (232.0...241.0) cm3 : 8.00Spread 1000 s: (12.0) Aneroid pressure h: 1800 : 800 Speed rom Del.quantity cm3/: 248.0...252.0 1000 s: (245.0...255.0) cm3 : 8.00 Spread 1000 s: (12.0) Aneroid pressure h: -: 500 Speed rpm Del.quantity cm3/: 135.0...137.0 1000 s: (132.0...140.0) cm3 : 8.00 Spread 1000 s: (12.0)

BREAKAWAY

1st version 1mm rack travel less than

full load rack tr: 13.90 Speed rpm : 1090...1105

Remarks:

* Increase in control-rod travel with respect to setting at least 0.1 mm

Speed

Aneroid pressure h: 1800

rpm : 1050

Note remarks

: MB 9,6 r 1 : 28.06.91 Test sheet Edition : 3.6.91 Replaces Test oil : ISO-4113

: 0 402 646 939 Combination no.

Injection pump

Pump designation : PE6P120A320LS7836 EP type number : 0 412 626 840

Governor

Governor design. : RQV300...950PA797-31

Governer no. : 0 421 813 922

Customer-spec. information

: MERCEDES-BENZ Customer

: 0M401 LA Engine

: 200.0 1st version kW : 1900 Rated speed

TEST BENCH REQUIREMENTS

Test oil

inlet temp. °C : 38...42

Overflow valve

: 1 417 413 025

Inlet press., bar: 1.50

Overflow

quantity min. 1/h: 100...120

Test nozzle holder

: 1 688 901 105 assembly

Opening

: 207...210 pressure, bar

Orifice plate

: 0,8 diameter mm

: 1 680 750 075 Test Lines

Outside diameter

x Wall thickness

: 8.00X2.50X1000 x Length mm

(A) Injection pump setting values Insp. values in parentheses Set equal delivery quant.

per values ____

BEGINNING OF DELIVERY

Test pressure, bar: 25...27

: 5.50...5.60 Prestroke mm

: (5.45...5.65)

Rack travel in mm : 20.00...21.00

Firing order : 6-3-5-2-4-1

Phasing : 0-60-120-180-240-300

Tolerance + - ° : 0.50 (0.75)

Time to cyl. no. : 6

BASIC SETTING

1st speed rpm: 600

Rack travel in mm : 12.40...12.60

Del.quantity cm3/: 18.2...18.4

100 s: (17.9...18.7)

cm3 : 0.5Spread

100 s: (0.9)

rpm : 300.0 2nd speed

Rack travel in mm: 5.2...5.8 Del.quantity cm3/: 1.6...2.2 100 s: (1.3...2.5)

cm3 : 0.6Spread 100 s: (1.0)

(B) Setting of injection pump

with governor

GUIDE SLEEVE TRAVEL

rpm : 300 1st speed

: 1.00...1.50 travel mm

: 617 2nd speed rpm

: 5.00...5.50 travel mm

: 780 3rd speed rpm travel mm : 6.10...6.60

: 1009 4th speed rom

: 8.30...8.80 travel mm

5th speed rpm : 1092

travel mm : 9.80...10.30

GUIDE SLEEVE POSITION Control-lever position

Degree: -1

rpm : 1020

Rack travel in mm : 15.20...17.80

FULL LOAD DELIV. AT FULL LOAD STOP

1st version rpm : 600 Speed Aneroid pressure h: 800 Del.quantity : 182.0...184.0 1000 : (179.0...187.0) : 5.00 Spread cm31000 : (9.00)RATED SPEED 1st version Control lever position degrees: 118...126 Testing: 1st rack travel in: 12.10 Speed rpm : 990...1000 2nd rack travel in: 4.00 rpm : 1075...1105 Speed 4th rack travel in: 1200 rpm : 0.00...1.00Speed LOW IDLE 1 Control lever position degrees: 82...90 Testing: speed rpm : 200 Minimum rack trave: 7.30 Speed rpm : 300 Rack travel in mm : 5.20...5.80 CONSTANT REGULATION rpm : 300...450 Speed TORQUE CONTROL Dimension a mm 2nd speed rpm : 950 Rack travel in m: 13.10...13.30 3rd speed rpm : 800 Rack travel in m: 13.10...13.30 Aneroid/Altitude Compensator Test 1st version Setting Speed : 600 rom Pressure hPa : 800 Rack travel mm : 12.40...12.50 Measurement Speed 1/min: 600 1st pressure hPa : 350
Rack travel in m: 10.20...10.40
2nd pressure hPa : 500
Rack travel in m: 11.60...11.80

Rack travel in m: 12.60...12.80 4th pressure hPa : 1150 Rack travel in m: 12.90...13.10 5th pressure hPa : Rack travel in m: 9.50...9.80 START CUT-OUT 1/min : 240 (260) Speed FUEL DELIVERY CHARACTERISTICS 1st version Aneroid pressure h: 1400 Speed rpm : 950 Del.quantity cm3/ : 203.0...206.0 1000 s: (200.0...209.0) Spread cm3 : 8.00 1000 s: (12.0) Aneroid pressure h: 1400 rpm : 800 Speed Del.quantity cm3/: 202.0...206.0 1000 s: (199.0...209.0) cm3 : 8.00Spread 1000 s: (12.0) Aneroid pressure h: -Speed rpm: 500 Del.quantity cm3/: 122.0...124.0 1000 s: (119.0...127.0) cm3 : 8.00 Spread 1000 s: (12.0) **BREAKAWAY** 1st version 1mm rack travel less than full load rack tr: 12.10 rpm : 990...1000 Speed STARTING FUEL DELIVERY Speed rpm : 100 Del.quantity cm3/ : 200.0...220.0 1000 s: (196.0...224.0)

Remarks:

3rd pressure hPa : 1000

Note remarks

Test sheet : MB 9,6 q 1 : 26.07.91 Edition : 3.5.91 Replaces : ISO-4113 Test oil

: 0 402 646 940 Combination no.

Injection pump

Pump designation : PE6P120A320LS7836 EP type number : 0 412 626 840

Governor

Governor design. : RQ300/950PA971-7 : 0 421 801 580 Governer no.

Customer-spec. information

: MERCEDES-BENZ Customer

Engine : 0M401 LA

: 200.0 1st version kW : 1900 Rated speed

TEST BENCH REQUIREMENTS

Test oil

inlet temp. °C : 38...42

Overflow valve

: 1 417 413 025

Inlet press., bar: 1.50

Overflow

quantity min. 1/h: 100...120

Test nozzle holder

: 1 688 901 105 assembly

Opening

: 207...210 pressure, bar

Orifice plate

diameter mm : 0,8

: 1 680 750 075 Test lines

Outside diameter

x Wall thickness

: 8.00x2.50x1000 x Length mm

(A) Injection pump setting values Insp. values in parentheses Set equal delivery quant.

per values ___

BEGINNING OF DELIVERY

Test pressure, bar: 25...27

Prestroke mm : 5.50...5.60

: (5.45...5.65) Rack travel in mm : 20.00...21.00

: 6-3-5-2-4-1 Firing order

: 0-60-120-180-240-300 Phasing

: 0.50 (0.75) Tolerance + - °

Time to cyl. no. : 6

BASIC SETTING

1st speed rpm: 600

Rack travel in mm : 12.40...12.60

Del.guantity cm3/: 18.2...18.4

100 s: (17.9...18.7)

Spread cm3 : 0.5

100 s: (0.9)

rpm : 300.02nd speed

Rack travel in mm: 5.3...5.9 Del.quantity cm3/: 1.6...2.2

100 s: (1.3...2.5)

cm3 : 0.6Spread

100 s: (1.0)

GUIDE SLEEVE POSITION Control-lever position

Degree: -2 Speed

rpm : 600 Rack travel in mm : 19.20...20.80

FULL LOAD DELIV. AT FULL LOAD STOP

1st version

Speed rpm : 600 Aneroid pressure h: 800

Del.quantity : 182.0...187.0)

: 5.00 cm3 Spread 1000 : (9.00)

RATED SPEED

1st version

Setting point:

: 600 Speed rpm Rack travel in mm : 20.0

Testing: 1st rack travel in: 12.10 rpm : 990...1005 Speed 2nd rack travel in: 4.00 rpm : 1065...1095 Speed 4th rack travel in: 1200 rpm : 0.00...1.50Speed LOW IDLE 1 Setting point w/out bumper spring rpm : 300 Rack travel in mm: 5.6 Testing: : 200 Speed rom Minimum rack trave: 7.40 : 300 Speed rpm Rack travel in mm : 5.30...5.90 Rack travel in mm : 2.00 : 370...410 Speed rpm Aneroid/Altitude Compensator Test 1st version Setting : 600 Speed mar hPa : 800 Pressure : 12.40...12.60 Rack travel mm Measurement $1/\min : 600$ Speed 1st pressure hPa : 350 Rack travel in m: 10.20...10.40 2nd pressure hPa : 500 Rack travel in m: 11.60...11.80 3rd pressure hPa : 1000 Rack travel in m: 12.60...12.80 4th pressure hPa : 1150 Rack travel in m: 12.90...13.10 5th pressure hPa : -Rack travel in m: 10.00...10.30 FUEL DELIVERY CHARACTERISTICS 1st version Aneroid pressure h: 1400 : 950 Speed rpm

Del.quantity cm3/: 203.0...206.0

1000 s: (12.0) Aneroid pressure h: 1400

rpm

cm3 : 8.00

Del.quantity cm3/: 202.0...206.0 1000 s: (199.0...209.0)

: 800

1000 s: (200.0...209.0)

Spread cm3: 8.00 1000 s: (12.0) Aneroid pressure h: -Speed rpm: 500 Del quantity cm3/: 122.0 124

Del.quantity cm3/: 122.0...124.0 1000 s: (119.0...127.0)

Spread cm3 : 8.00 1000 s: (12.0)

BREAKAWAY

1st version 1mm rack travel less than

full load rack tr: 12.10 Speed rpm : 990...1005

STARTING FUEL DELIVERY

Speed rpm : 100 Rack travel in mm : 10.00...10.30

Remarks:

C27

Spread

Speed

Note remarks

: DAF 11.7 L2 : 21.06.91 : 27.5.91 Test sheet Edition Replaces : ISO-4113 Test oil

: 0 402 646 941 Combination no.

Injection pump

Pump designation : PE6P12OA32ORS7218Z

: 0 412 626 847 EP type number

Governor

Governor design. : RQ250/1000PA936-1 : 0 421 801 508 Governer no.

Customer-spec. information Customer : DAF

: WS 222 G Engine

TEST BENCH REQUIREMENTS

Test oil

inlet temp. °C : 38...42

Overflow valve

: 1 417 413 025

Inlet press., bar: 1.50

Test nozzle holder

: 1 688 901 019 assembly

Opening.

: 207...210 pressure, bar

Orifice plate

diameter mm : 0,8

: 1 680 750 075 Test lines

Outside diameter x Wall thickness

x Length mm : 8.00X2.50X1000

(A) Injection pump setting values Insp. values in parentheses Set equal delivery quant.

per values

BEGINNING OF DELIVERY

Test pressure, bar: 25...27

Prestroke mm : 5.30...5.40

: (5.25...5.45) Rack travel in mm : 13.10...14.10

Firing order : 1-5-3-6-2-4

: 0-60-120-180-240-300 Phasing

Tolerance + - ° : 0.50 (0.75)

Time to cyl. no. : 1

BEGINNING OF DELIVERY DIFFERENCE

betw. rack trav. m: 4.90...5.10 & maximum rack tra: 13.1...14.1 Difference ° CS : 2.25...3.75

BASIC SETTING

1st speed rpm: 850

Rack travel in mm : 13.60...13.70

Del.quantity cm3/: 19.6...19.8

100 s: (19.3...20.1)

cm3 : 0.5Spread

100 s: (0.9)

rpm : 250.0 2nd speed Rack travel in mm: 6.6...6.8

Del.quantity cm3/: 1.4..2.0 100 s: (1.1..2.3) Spread cm3: 0.8

100 s: (1.2)

GUIDE SLEEVE POSITION Control-lever position

Degree: -1 rpm : 550

Rack travel in mm : 15.20...16.40

FULL LOAD DELIV. AT FULL LOAD STOP

1st version

rpm : 850 Speed Aneroid pressure h: 1000

: 196.0...198.0 Del.quantity 1000 : (193.0...201.0)

: 5.00 Spread cm3

1000 : (9.00) 🐷

RATED SPEED

1st version

Setting point:

: 550 Speed rpm Rack travel in mm: 15.8

C28

Testing: 1st rack travel in: 12.60 Speed rpm : 1040...1050 2nd rack travel in: 4.00 rom : 1130...1160 Speed 4th rack travel in: 1250 Speed rom : 0.00...2.00 LOW IDLE 1 Setting point w/out bumper spring rpm : 250 Rack travel in mm: 5.0 Testing: rpm : 100 Speed Minimum rack trave: 6.50 rpm : 250 Rack travel in mm : 4.90...5.10 Rack travel in mm: 2.00 rpm : 310...350 Speed TORQUE CONTROL Dimension a mm : -Torque control curve - 1st version 1st speed rpm : 850 Rack travel in m: 14.60...14.70 2nd speed rpm : 990 Rack travel in m: 14.50...14.70 Aneroid/Altitude Compensator Test 1st version Setting Speed rpm : 600 hPa : 1000 Pressure : 13.60...13.70 Rack travel mm Measurement 1/min: 600 Speed 1st pressure hPa : -Rack travel in m: 12.30...12.50 2nd pressure hPa : 390 Rack travel in m: 13.30...13.40 3rd pressure hPa : 310 Rack travel in m: 12.70...12.90 FUEL DELIVERY CHARACTERISTICS 1st version

BREAKAWAY

1st version 1mm rack travel less than

full load rack tr: 12.60 Speed rpm : 1040...1050

LOW IDLE

Speed rpm: 250

Rack travel in mm : 4.90...5.10

Remarks:

D01

٠.

Speed

Aneroid pressure h: -

rpm : 600

Del.quantity cm3/: 161.0...163.0 1000 s: (158.0...166.0)

: 3.30...3.40 : (3.25...3.45) BOSCH INJ. PUMP TEST SPECIFICATIONS Prestroke mm Rack travel in mm : 9.00...12.00 Note remarks Firing order : 1-5-3-6-2-4 : PEN 7,2 a : 26.07.91 Test sheet Edition Replaces : 0-60-120-180-240-300 Test oil : TSO-4113 Phasing Combination no. : 0 402 646 948 Tolerance + - ° : 0.50 (0.75) Injection pump Time to cyl. no. : 1 Pump designation : PE6P12OA32ORS7233-1 BASIC SETTING EP type number : 0 412 626 849 Governor Governor design. : RQV300...1300PA1003K Governor no. : 0 421 815 281 rpm: 1200 1st speed Rack travel in mm : 14.60...14.70 Customer-spec. information Del.quantity cm3/: 27.0...27.2 : PENTA Customer 100 s: (26.7...27.5) : TAMD 72 A Engine : 316.0 : 2600 cm3 : 0.6Spread 1st version kW Rated speed 100 s: (1.0) TEST BENCH REQUIREMENTS rpm : 300.02nd speed Rack travel in mm : 5.9...6.2 Del.quantity cm3/: 2.0...2.6 100 s: (1.7...2.7) Test oil inlet temp. °C : 38...42 cm3 : 0.7Overflow valve Spread : 1 457 413 010 100 s: (1.1) (B) Setting of injection pump Inlet press., bar: 1.50 with governor Test nozzle holder : 1 688 901 105 GUIDE SLEEVE TRAVEL assembly 1st speed rpm : 300 : 2.00...2.40 Openina travel mm rpm : 550 pressure, bar : 207...210 2nd speed : 4.00...4.60 travel mm rpm : 1000 3rd speed Orifice plate 7.00...7.60 diameter mm : 0,8 travel mm rpm : 1350 4th speed : 10.10...10.30 travel mm : 1 680 750 015 rpm : 1430 5th speed Test lines : 10.90...11.30 travel mm Outside diameter GUIDE SLEEVE POSITION x Wall thickness : 6.00X1.50X600 Control-lever position x Length mm Degree: -1 rpm : 1500 (A) Injection pump setting values Speed Rack travel in mm : 6.00...12.00 Insp. values in parentheses Set equal delivery quant. FULL LOAD DELIV. AT FULL LOAD STOP per values ____ 1st version BEGINNING OF DELIVERY Speed rom : 1200 Test pressure, bar: 25...27

Aneroid pressure h: 2000

Del.quantity : 270.0...272.0 1000 : (267.0...275.0) Spread cm3 : 6.001000 : (10.00) RATED SPEED 1st version Control lever position degrees: 115...123 Testing: 1st rack travel in: 13.60 rpm : 1330...1340 Speed 2nd rack travel in: 4.00 Speed rpm : 1460...1490 4th rack travel in: 1550 rpm : 0.00...1.00Speed LOW IDLE 1 Control lever position degrees: 71...79 Testing: Speed mon Minimum rack trave: 7.00 rpm : 300 Speed Rack travel in mm: 5.40...5.60 CONSTANT REGULATION rpm : 300...520 Speed TORQUE CONTROL Dimension a mm :? Torque control curve - 1st version 1st speed rpm : 1300 Rack travel in m: 14.60...14.70 2nd speed rpm : 1200 n m: 14.00...14.30 Rack trav 3rd speed with the 1000 *7.50...12.90 Rack travel # 15 4th speed rp. Rack travel in * 2.10...12.30 Aneroid/Altitude Compensator Test 1st version Setting rpm : 1300 hPa : 2000 Speed Pressure : 14.60...14.70 Rack travel mm Measurement 1/min: 1300 Speed 1st pressure hPa : -Rack travel in m: 7.10...7.40 2nd pressure hPa : 350

Rack travel in m: 0.20...0.30 3rd pressure hPa : 1260 Rack travel in m: 4.50...4.60 FUEL DELIVERY CHARACTERISTICS 1st version Aneroid pressure h: 2000 Speed rpm : 800 Del.quantity cm3/: 251.0...257.0 1000 s: (248.0...260.0) cm3 : 9.00Spread 1000 s: (13.0) Aneroid pressure h: -Speed rpm : 800 Del.quantity cm3/: 125.0...127.0 1000 s: (122.0...130.0) BREAKAWAY 1st version 1mm rack travel less than full load rack tr: 13.60 rpm : 1330...1340 Speed LOW IDLE Speed rpm : 300 Rack travel in mm : 5.40...5.60 Remarks: Start-of-delivery setting with ROBO diaphragm. **APPLICATION** Navy

003

Note remarks

: DAF 11.7 n1 : 21.06.91 : 3.5.91 Test sheet Edition

Replaces Test oil : ISO-4113

: 0 402 646 949 Combination no.

Injection pump

Pump designation : PE6P120A320RS7230Z

: D 412 626 848 EP type number

Governor

: RQV250...1000PA990K Governor design.

: 0 421 815 274 Governer no.

Customer-spec. information Customer : DAF

: WS 295 G Engine

TEST BENCH REQUIREMENTS

Test oil

inlet temp. °C : 38...42

Overflow valve

: 1 417 413 025

Inlet press., bar: 1.50

Test nozzle holder

: 1 688 901 105 assembly

Openina

: 207...210 pressure, bar

Orifice plate

diameter mm : 0,8

Test Lines : 1 680 750 089

Outside diameter x Wall thickness

: 8.00x2.50x600 x Length mm

(A) Injection pump setting values Insp. values in parentheses Set equal delivery quant.

per values

BEGINNING OF DELIVERY

Test pressure, bar: 25...27

: 5.00...5.10 Prestroke mm

: (4.95...5.15)

Rack travel in mm : 9.00...12.00

: 1-5-3-6-2-4 Firing order

: 0-60-120-180-240-300 Phasing

: 0.50 (0.75) Tolerance + - °

BASIC SETTING

rpm: 980 1st speed

Rack travel in mm : 13.70...13.80

Del.quantity cm3/: 25.4...25.6

100 s: (25.1...25.9)

cm3 : 0.5Spread

100 s: (0.9)

2nd speed rpm : 250.0 Rack travel in mm : 5.8...6.0 Del.quantity cm3/: 1.4...2.0

100 s: (1.1...2.3)

Spread cm3 : 0.8

100 s: (1.2)

(B) Setting of injection pump with governor

GUIDE SLEEVE TRAVEL

1st speed rpm : 250

: 1.30...1.70 travel mm

rpm : 285 2nd speed

: 2.10...2.50 travel mm

rpm : 1030 3rd speed

travel mm : 9.60...10.00

: 1145 4th speed rpm

: 11.20...11.40 travel mm

GUIDE SLEEVE POSITION

Control-lever position

Degree: -1

rpm : 1070 Speed

Rack travel in mm : 15.20...17.80

FULL LOAD DELIV. AT FULL LOAD STOP

1st version

rpm : 980 Speed

Aneroid pressure h: 1500

Del.quantity : 254.0...256.0 1000 : (251.0...259.0)

: 5.00 cm3 Spread

1000 : (9.00)

RATED SPEED

DO4

1st version Control lever position degrees: 115...123 Testing: 1st rack travel in: 12.70 rpm : 1030...1040 Speed 2nd rack travel in: 4.00 Speed rpm : 1135...1165 4th rack travel in: 1275 rpm : 0.00...1.40 Speed LOW IDLE 1 Control lever position degrees: 65...73 Testing: Speed : 100 rpm Minimum rack trave: 6.60 rpm : 250 Speed Rack travel in mm : 5.10...5.30 Rack travel in mm : 2.00 rom: 320...360 Speed TORQUE CONTROL Dimension a mm :? Torque control curve - 1st version 1st speed rpm : 500 Rack travel in m: 12.20...12.30 2nd speed rpm : 675 Rack travel in m: 12.60...12.70 3rd speed rpm : 800 Rack travel in m: 13.20...13.40 4th speed rpm : 980 Rack travel in m: 14.10...14.30 Aneroid/Altitude Compensator Test 1st version Settina : 980 Speed man hPa : 1500 Pressure : 13.70...13.80 Rack travel mm Measurement 1/min: 980 Speed 1st pressure hPa : -Rack travel in m: 8.10...8.30 2nd pressure hPa : 530
Rack travel in m: 10.80...10.90
3rd pressure hPa : 290 Rack travel in m: 9.10...9.30 FUEL DELIVERY CHARACTERISTICS 1st version

BREAKAWAY

1st version 1mm rack travel less than

full load rack tr: 12.70 Speed rpm : 1030...1040

LOW IDLE

Speed rpm : 250 Rack travel in mm : 5.10...5.30

Remarks:

DO5

Note remarks

Test sheet : MB 9,6 s : 21.06.91 Edition : 3.5.91 Replaces : ISO-4113 Test oil

Combination no. : 0 402 646 950

Injection pump

Pump designation: PE6P120A320LS7837 EP type number : 0 412 626 842

Governor

Governor design. : RQ300/950PA993-2 Governer no. : 0 421 801 590

Customer-spec. information

: MERCEDES-BENZ Customer

: 0M441 LA Engine

: 250.0 1st version kW : 1900 Rated speed

TEST BENCH REQUIREMENTS

Test oil

: 38...42 inlet temp. °C

Overflow valve

: 1 417 413 025

Inlet press., bar: 1.50

Overflow

quantity min. 1/h: 100...120

Test nozzle holder

: 1 688 901 105 assembly

Openina |

pressure, bar : 207...210

Orifice plate

diameter mm : 0.8

: 1 680 750 075 Test Lines

Outside diameter

x Wall thickness

x Length mm : 8.00x2.50x1000

(A) Injection pump setting values Insp. values in parentheses Set equal delivery quant.

per values ____

BEGINNING OF DELIVERY

Test pressure, bar: 25...27

: 5.20...5.30 Prestroke mm

: (5.15...5.35)

Rack travel in mm : 20.00...21.00 Firing order : 6-3-5-2-4-1

: 0-60-120-180-240-300 Phasing

Tolerance + - ° : 0.50 (0.75)

Time to cyl. no. : 6

BASIC SETTING

rpm: 600 1st speed

Rack travel in mm : 14.70...14.90

Del.quantity cm3/: 23.3...23.5

100 s: (23.0...23.8)

Spread cm3 : 0.5

100 s: (0.9)

rpm : 300.02nd speed Rack travel in mm: 5.6...6.2 Del.quantity cm3/: 1.6...2.2

100 s: (1.3...2.5)

cm3 : 0.6 Spread 100 s: (1.0)

GUIDE SLEEVE POSITION Control-lever position

Degree: -2

rpm : 600

Rack travel in mm : 19.20...20.80

FULL LOAD DELIV. AT FULL LOAD STOP

1st version

rpm : 600 Speed Aneroid pressure h: 1000

Del.quantity : 233.0...238.0)

: 5.00 Spread cm3

1000 : (9.00)

RATED SPEED

1st version

Setting point: Speed rom Rack travel in mm: 20.0

Testing: 1st rack travel in: 14.50 rpm : 990...1005 Speed 2nd rack travel in: 4.00 Speed rpm : 1065...1095 4th rack travel in: 1200 Speed rom : 0.00...1.50LOW IDLE 1 Setting point w/out bumper spring Speed rpm : 300 Rack travel in mm : 5.9 : 300 Testina: Speed rpm Minimum rack trave: 7.90 Speed rpm: 300
Rack travel in mm: 5.60...6.20
Rack travel in mm: 2.00
Speed rpm: 380...420 TORQUE CONTROL Dimension a mm : 0.40 : 950 2nd speed rpm Rack travel in m: 15.50...15.70 3rd speed rpm : 800 Rack travel in m: 15.60...15.80 Aneroid/Altitude Compensator Test 1st version Setting : 600 Speed rpm hPa : 1000 Pressure : 14.70...14.90 Rack travel mm Measurement 1/min: 600 Speed 1st pressure hPa : 200 Rack travel in m: 10.00...10.20 2nd pressure hPa : 600 Rack travel in m: 13.50...13.70

3rd pressure hPa : 1250
Rack travel in m: 14.80...15.00 *
4th pressure hPa : 1450
Rack travel in m: 15.40...15.60 5th pressure hPa : -Rack travel in m: 9.30...9.50 FUEL DELIVERY CHARACTERISTICS

Del.quantity cm3/: 251.0...254.0 1000 s: (248.0...257.0) cm3 : 8.00 Spread 1000 s: (12.0) Aneroid pressure h: 1800 : 800 Speed rpm Del.quantity cm3/: 250.0...254.0 1000 s: (247.0...257.0) cm3 : 8.00 Spread 1000 s: (12.0) Aneroid pressure h: rpm : 500 Speed Del.quantity cm3/: 135.0...137.0 1000 s: (132.0...140.0) cm3 : 8.00 Spread 1000 s: (12.0)

BREAKAWAY

1st version 1mm rack travel less than

full load rack tr: 14.50 Speed rpm : 990...1005

STARTING FUEL DELIVERY

Speed rpm : 100 Del.quantity cm3/ : 240.0...260.0 1000 s: (236.0...264.0)

Remarks:

* Increase in control-rod travel with respect to setting at least 0.1 mm

Speed

1st version

Aneroid pressure h: 1800

rpm : 950

BOSCH INJ. PUMP TEST SPECIFICATIONS Note remarks

: MB 9,6 q 2 : 05.07.91 Test sheet Edition

Replaces

: ISO-4113 Test oil

: 0 402 646 952 Combination no.

Injection pump

Pump designation : PE6P12OA32OLS7836 EP type number : 0 412 626 840

Governor

Governor design. : RQ300/1050PA762-14

Governer no. : 0 421 801 606

Customer-spec. information

Customer : MERCEDES-BENZ

Engine : 0M401 LA

1st version kW : 180.0 : 2100 Rated speed

TEST BENCH REQUIREMENTS

Test oil

inlet temp. °C : 38...42

Overflow valve

: 1 417 413 025

Inlet press., bar: 1.50

Overflow

quantity min. 1/h: 100...120

Test nozzle holder

: 1 688 901 105 assembly

Opening

: 207...210 pressure, bar

Orifice plate

diameter mm : 0,8

: 1 680 750 075 Test lines

Outside diameter x Wall thickness

x Length mm : 8.00x2.50x1000

(A) Injection pump setting values Insp. values in parentheses Set equal delivery quant.

per values _

BEGINNING OF DELIVERY

Test pressure, bar: 25...27

: 5.50...5.60 Prestroke mm

: (5.45...5.65)

Rack travel in mm : 20.00...21.00

Firing order : 6-3-5-2-4-1

Phasing : 0-60-120-180-240-300

Tolerance + - ° : 0.50 (0.75)

Time to cyl. no. : 6

BASIC SETTING

1st speed rpm: 600

Rack travel in mm : 11.70...11.90

Del.guantity cm3/: 16.4...16.6

100 s: (16.1...16.9)

cm3 : 0.5Spread

100 s: (0.9)

rpm : 300.02nd speed

Rack travel in mm: 5.3...5.9 Del.quantity cm3/ : 1.6...2.2

100 s: (1.3...2.5)

cm3 : 0.6Spread 100 s: (1.0)

GUIDE SLEEVE POSITION Control-lever position

Degree: -2 rpm : 600 Speed

Rack travel in mm : 19.20...20.80

FULL LOAD DELIV. AT FULL LOAD STOP

1st version

rpm : 600 Speed Aneroid pressure h: 700

: 164.0...166.0 Del.quantity 1000 : (161.0...169.0)

: 5.00 cm3

1000 : (9.00)

RATED SPEED

Spread

1st version

Setting point:

Speed : 600 rpm Rack travel in mm: 20.0 Testina:

1st rack travel in: 11.30

rpm : 1090...1105 Speed

2nd rack travel in: 4.00

rpm : 1165...1195 Speed

4th rack travel in: 1200

rpm : 0.00...1.50Speed

LOW IDLE 1

Setting point w/out bumper spring

rpm : 300 Rack travel in mm: 5.6

Testing:

Speed rpm : 200 Minimum rack trave: 7.40

speed rpm : 300
Rack travel in mm : 5.30...5.90
Rack travel in mm : 2.00
Speed

rpm : 370...410 Speed

Aneroid/Altitude Compensator Test

1st version

Setting

: 600 Speed riom hPa : 700 Pressure

: 11.70...11.90 Rack travel mm

Measurement

1/min: 600 Speed

1st pressure hPa : 200

Rack travel in m: 10.00...10.20

2nd pressure hPa : 400

Rack travel in m: 11.10...11.30

3rd pressure hPa : 900

Rack travel in m: 11.80...12.00 *

4th pressure hPa

Rack travel in m: 10.00...10.30

START CUT-OUT

1/min: 220 (240) Speed

FUEL DELIVERY CHARACTERISTICS

1st version

Aneroid pressure h: 1400

rpm : 1050 Speed

Del.quantity cm3/: 182.0...185.0 1000 s: (179.0...188.0)

cm3 : 8.00 Spread

1000 s: (12.0)

Aneroid pressure h: -

rpm : 500 Speed

D09

Del.quantity cm3/: 122.0...124.0 1000 s: (119.0...127.0)

cm3 : 8.00Spread 1000 s: (12.0)

BREAKAWAY

1st version

1mm rack travel less than

full load rack tr: 11.30

rpm : 1090...1105 Speed

STARTING FUEL DELIVERY

rpm : 100 Speed

Del.quantity cm3/: 200.0...220.0 1000 s: (196.0...224.0)

Remarks:

* Increase in control-rod travel with respect to setting at least 0.1 mm

Note remarks

Test sheet : MB 9,6 q 3 : 05.07.91 Edition

Replaces

Test oil : ISO-4113

Combination no. : 0 402 646 953

Injection pump

Pump designation : PE6P12OA32OLS7836

EP type number : 0 412 626 840

Governor

Governor design. : RQ300/950PA762-15

: 0 421 801 607 Governer no.

Customer-spec. information

: MERCEDES-BENZ Customer

: 0M401 LA Engine

: 180.0 1st version kW : 1900 Rated speed

TEST BENCH REQUIREMENTS

Test oil

inlet temp. °C : 38...42

Overflow valve

: 1 417 413 025

Inlet press., bar: 1.50

Overflow

quantity min. 1/h: 100...120

Test nozzle holder

: 1 688 901 105 assembly

Opening

: 207...210 pressure, bar

Orifice plate

diameter mm : 0,8

: 1 680 750 075 Test Lines

Outside diameter

x Wall thickness

x Length mm : 8.00X2.50X1000

(A) Injection pump setting values Insp. values in parentheses Set equal delivery quant.

per values ____

BEGINNING OF DELIVERY

Test pressure, bar: 25...27

Prestroke mm : 5.50...5.60

: (5.45...5.65)

Rack travel in mm : 20.00...21.00

: 6-3-5-2-4-1 Firing order

: 0-60-120-180-240-300 Phasing

Tolerance $+ - ^{\circ} : 0.50 (0.75)$

Time to cyl. no. : 6

BASIC SETTING

1st speed rpm: 600

Rack travel in mm : 11.70...11.90

Del.guantity cm3/: 16.4...16.6

100 s: (16.1...16.9)

cm3 : 0.5Spread

100 s: (0.9)

rpm : 300.02nd speed

Rack travel in mm: 5.3...5.9

Del.quantity cm3/: 1.6...2.2

100 s: (1.3...2.5)

cm3 : 0.6 Spread 100 s: (1.0)

GUIDE SLEEVE POSITION Control-lever position

Degree: -2

rpm : 600

Rack travel in mm : 19.20...20.80

FULL LOAD DELIV. AT FULL LOAD STOP

1st version

rpm : 600 Speed

Aneroid pressure h: 700

Del.quantity : 104.u...169.0)

cm3 : 5.00 Spread

1000 : (9.00)

RATED SPEED

1st version

Setting point:

rpm : 600 Rack travel in mm : 20.0 Testing:

1st rack travel in: 11.50

rpm : 990...1005 Speed

2nd rack travel in: 4.00

rpm : 1065...1095 Speed

4th rack travel in: 1200

rpm : 0.00...1.50 Speed

LOW IDLE 1

Setting point w/out bumper spring

rpm : 300 Speed Rack travel in mm: 5.6

Testing:

Speed rpm

Minimum rack trave: 7.40 rpm : 300 Speed

Rack travel in mm: 5.30...5.90
Rack travel in mm: 2.00
Speed rpm: 370...410

Aneroid/Altitude Compensator Test

1st version

Setting Speed

: 600 rom

Pressure hPa : 700 : 11.70...11.90 Rack travel mm

Measurement

1/min: 600 Speed

1st pressure hPa : 200

Rack travel in m: 10.00...10.20

2nd pressure hPa : 400

Rack travel in m: 11.10...11.30

3rd pressure hPa : 900

Rack travel in m: 11.80...12.00 *

4th pressure hPa

Rack travel in m: 10.00...10.30

START CUT-OUT

1/min: 220 (240) Speed

FUEL DELIVERY CHARACTERISTICS

1st version

Aneroid pressure h: 1400

: 950 Speed rom

Del.quantity cm3/: 187.0...190.0

1000 s: (184.0...193.0)

cm3 : 8.00 Spread

1000 s: (12.0)

Aneroid pressure h: -

: 500 Speed rpm

Del.quantity cm3/: 122.0...124.0 1000 s: (119.0...127.0) Spread cm3 : 8.00

1000 s: (12.0)

BREAKAWAY

1st version

1mm rack travel less than

full load rack tr: 11.50

rpm : 990...1005 Speed

STARTING FUEL DELIVERY

Speed rpm

Del.quantity cm3/: 200.0...220.0 1000 s: (196.0...224.0)

Remarks:

* Increase in control-rod travel with respect to setting at least 0.1 mm

Note remarks

Test sheet : MB 9,6 r 2 : 02.08.91 Edition

Replaces

Test oil : ISO-4113

: 0 402 646 957 Combination no.

Injection pump

Pump designation: PE6P120A320LS7836

: 0 412 626 840 EP type number

Governor

: RQV300...1050PA797 Governor design.

: 0 421 813 957 Governer no.

Customer-spec. information

: MERCEDES-BENZ Customer

: 0M401 LA Engine

1st version kW : 180.0 : 2100 Rated speed

TEST BENCH REQUIREMENTS

Test oil

inlet temp. °C : 38...42

Overflow valve

: 1 417 413 025

Inlet press., bar: 1.50

Overflow

quantity min. 1/h: 100...120

Test nozzle holder

: 1 688 901 105 assembly

Opening.

: 207...210 pressure, bar

Orifice plate

diameter mm : 0,8

Test lines : 1 680 750 075

Outside diameter

x Wall thickness

: 8.00X2.50X1000 x Length mm

(A) Injection pump setting values Insp. values in parentheses Set equal delivery quant.

per values

BEGINNING OF DELIVERY

Test pressure, bar: 25...27

: 5.50...5.60 Prestroke mm

: (5.45...5.65)

Rack travel in mm : 20.00...21.00

: 6-3-5-2-4-1 Firing order

: 0-60-120-180-240-300 Phasing

Tolerance + - ° : 0.50 (0.75)

Time to cyl. no.

BASIC SETTING

1st speed rpm: 600

Rack travel in mm : 11.70...11.90

Del.quantity cm3/: 16.4...16.6

100 s: (16.1...16.9)

Spread cm3 : 0.5

100 s: (0.9)

rpm : 300.0 2nd speed

Rack travel in mm : 5.3...5.9 Del.quantity cm3/ : 1.6...2.2 100 s: (1.3...2.5)

cm3 : 0.6Spread

100 s: (1.0)

(B) Setting of injection pump

with governor

GUIDE SLEEVE TRAVEL

rpm : 300 1st speed rpm : 500 2nd speed

: 5.90...6.10 travel mm

3rd speed rpm : 950 rpm : 1009 4th speed

5th speed rpm

GUIDE SLEEVE POSITION Control-lever position

Degree: -1 rpm : 1100

Speed Rack travel in mm : 15.20...17.80

FULL LOAD DELIV. AT FULL LOAD STOP

1st version

Speed rpm : 600

Aneroid pressure h: 700

Del.quantity : 164.0...169.0)

: 5.00

cm3 Spread 1000 : (9.00)

RATED SPEED

1st version Control Lever

position degrees: 116...124

Testing:

1st rack travel in: 11.30

rpm : 1090...1100 Speed 2nd rack travel in: 4.00

rpm : 1165...1195 Speed

4th rack travel in: 1200 rom : 0.00...1.00Speed

LOW IDLE 1 Control lever

position degrees: 82...90

Testing:

Speed rpm: 200 Minimum rack trave: 7.40

Speed rpm : 300 Rack travel in mm : 5.30...5.90

CONSTANT REGULATION

rpm : 300...550 Speed

Aneroid/Altitude Compensator Test

1st version

Settina

: 600 Speed rpm Pressure hPa : 700

: 11.70...11.90 Rack travel mm

Measurement

1/min : 600 Speed

1st pressure hPa : 200 Rack travel in m: 10.00...10.20

2nd pressure hPa : 400

Rack travel in m: 11.10...11.30

3rd pressure hPa : 900

Rack travel in m: 11.80...12.00 *

4th pressure hPa : -

Rack travel in m: 10.00...10.30

START CUT-OUT

1/min: 220 (240) Speed

FUEL DELIVERY CHARACTERISTICS

1st version

Aneroid pressure h: 1400 rpm : 1050 Speed

Del.quantity cm3/: 182.0...185.0 1000 s: (179.0...188.0)

cm3 : 8.00 Spread

1000 s: (12.0)

Aneroid pressure h:

1000 s: (12.0)

BREAKAWAY

1st version

1mm rack travel less than

full load rack tr: 11.30

rpm : 1090...1100 Speed

STARTING FUEL DELIVERY

Speed rpm : 100 Del.quantity cm3/ : 200.0...220.0 1000 s: (196.0...224.0)

Remarks:

* Increase in control-rod travel with respect to setting at least 0.1 mm

Note remarks

Test sheet : MB 9,6 r 3 Edition : 02.08.91

Replaces

Test oil : ISO-4113

: 0 402 646 958 Combination no.

Injection pump

Pump designation : PE6P12OA32OLS7836

EP type number : 0 412 626 840

Governor

Governor design. : RQV300...950PA797-33

: 0 421 813 958 Governer no.

Customer-spec. information

: MERCEDES-BENZ Customer

: 0M401 LA Engine

: 180.0 1st version kW : 1900 Rated speed

TEST BENCH REQUIREMENTS

Test oil

inlet temp. °C : 38...42

Overflow valve

: 1 417 413 025

Inlet press., bar: 1.50

Overflow

quantity min. 1/h: 100...120

Test nozzle holder

: 1 688 901 105 assembly

Opening

pressure, bar : 207...210

Orifice plate

diameter mm : 0,8

Test Lines : 1 680 750 075

Outside diameter x Wall thickness

: 8.00x2.50x1000 x Length mm

(A) Injection pump setting values Insp. values in parentheses Set equal delivery quant.

per values

BEGINNING OF DELIVERY

Test pressure, bar: 25...27

Prestroke mm

: 5.50...5.60 : (5.45...5.65)

Rack travel in mm : 20.00...21.00 Firing order : 6-3-5-2-4-1

Phasina : 0-60-120-180-240-300

Tolerance + - ° : 0.50 (0.75)

Time to cyl. no. : 6

BASIC SETTING

rpm: 600 1st speed

Rack travel in mm : 11.70...11.90

Del.quantity cm3/: 16.4...16.6

100 s: (16.1...16.9)

cm3 : 0.5Spread

100 s: (0.9)

rpm : 300.02nd speed

Rack travel in mm : 5.3...5.9 Del.quantity cm3/: 1.6...2.2 100 s: (1.3...2.5)

cm3 : 0.6 Spread 100 s: (1.0)

(B) Setting of injection pump

with governor

GUIDE SLEEVE TRAVEL

1st speed

: 300 : 2.10...2.30 : 5.90...6.10 : 6.30...6.50 travel mm travel mm travel mm

: 6.60...6.80 travel mm 5th speed : 1160 rpm

: 11.00...12.00 travel mm

GUIDE SLEEVE POSITION

Control-lever position

Degree: -1

rpm : 1000

Rack travel in mm : 15.20...17.80

FULL LOAD DELIV. AT FULL LOAD STOP

1st version

rpm : 600 Speed Aneroid pressure h: 700

: 164.0...166.0 Del.quantity

1000 : (161.0...169.0)

: 5.00 cm3Spread 1000 : (9.00)

RATED SPEED

1st version Control Lever

position degrees: 116...124

Testing:

1st rack travel in: 11.50

rpm : 990...1000 Speed

2nd rack travel in: 4.00

Speed rpm : 1065...1095 4th rack travel in: 1200

Speed rpm : 0.00...1.00

LOW IDLE 1

Control lever

position degrees: 82...90

Testing:

Speed rpm Minimum rack trave: 7.40

Speed rpm : 300 Rack travel in mm : 5.30...5.90

CONSTANT REGULATION

: 300...550 Speed rom

Aneroid/Altitude Compensator Test

1st version

Setting

Speed : 600 rpm hPa : 700 Pressure

: 11.70...11.90 Rack travel mm

Measurement

 $1/\min : 600$ Speed

1st pressure hPa : 200 Rack travel in m: 10.00...10.20 2nd pressure hPa : 400 Rack travel in m: 11.10...11.30

3rd pressure hPa : 900

Rack travel in m: 11.80...12.00 *

4th pressure hPa

Rack travel in m: 10.00...10.30

START CUT-OUT

1/min: 220 (240) Speed

FUEL DELIVERY CHARACTERISTICS

1st version

Aneroid pressure h: 1400

Speed rpm : 950
Del.quantity cm3/: 187.0...190.0
1000 s: (184.0...193.0)

Spread cm3 : 8.00

1000 s: (12.0)

Aneroid pressure h: -

Speed rpm: 500 Del.quantity cm3/: 122.0...124.0 1000 s: (119.0...127.0)

cm3 : 8.00 Spread 1000 s: (12.0)

BREAKAWAY

1st version

1mm rack travel less than

full load rack tr: 11.50

rpm : 990...1000 Speed

STARTING FUEL DELIVERY

Speed rpm : 100 Del.quantity cm3/ : 200.0...220.0 1000 s: (196.0...224.0)

Remarks:

* Increase in control-rod travel with respect to setting at least 0.1 mm

Note remarks

: MB 9,6 q 4 : 02.08.91 Test sheet Edition

Replaces

: ISO-4113 Test oil

Combination no. : 0 402 646 959

Injection pump

Pump designation: PE6P120A320LS7836 : 0 412 626 840 EP type number

Governor

Governor design. : RQ300/1050PA993-6

Governer no. : 0 421 801 616

Customer-spec. information

: MERCEDES-BENZ Customer

: 0M4D1 LA Engine

: 200.0 1st version kW Rated speed : 2100

TEST BENCH REQUIREMENTS

Test oil

inlet temp. °C : 38...42

Overflow valve

: 1 417 413 025

Inlet press., bar: 1.50

Overflow

quantity min. 1/h: 100...120

Test nozzle holder

: 1 688 901 105 assembly

Opening

: 207...210 pressure, bar

Orifice plate

diameter mm : 0,8

Test lines : 1 680 750 075

Outside diameter

x Wall thickness

: 8.00X1.50X1000 x Length mm

(A) Injection pump setting values Insp. values in parentheses Set equal delivery quant.

per values ___

BEGINNING OF DELIVERY

Test pressure, bar: 25...27

: 5.50...5.60 Prestroke mm

: (5.45...5.65)
Rack travel in mm : 20.00...21.00
Firing order : 6-3-5-2-

Phasina : 0-60-120-180-240-300

: 0.50 (0.75) Tolerance + - °

Time to cyl. no. : 6

BASIC SETTING

rpm: 600 1st speed

Rack travel in mm : 12.40...12.60

Del.guantity cm3/: 18.2...18.4

100 s: (17.9...18.7)

cm3 : 0.5 Spread

100 s: (0.9)

rpm : 300.02nd speed Rack travel in mm: 5.5...5.8

Del.quantity cm3/: 1.6...2.2

100 s: (1.3...2.5) cm3 : 0.6 Spread

100 s: (1.0)

GUIDE SLEEVE POSITION Control-lever position

Degree: -2

rpm : 600 Speed

Rack travel in mm: 19.20...20.80

FULL LOAD DELIV. AT FULL LOAD STOP

1st version

Speed rpm : 600

Aneroid pressure h: 800 Det.quantity
1000

: 182.0...184.0 : (179.0...187.0)

: 5.00 Spread cm3

1000 : (9.00)

RATED SPEED

1st version

Setting point:

Speed rpm Rack travel in mm: 20.0

D16

Aneroid pressure h: 1400 Testing: Speed rpm Del.quantity cm3/: 202.0...206.0 1000 s: (199.0...209.0) 1st rack travel in: 12.10 Speed rpm : 1090...1105 2nd rack travel in: 4.00 Spread cm3 : 8.00 1000 s: (12.0) rpm : 1165...1195 Speed 4th rack travel in: 1300 rpm : 0.00...1.50Speed Speed rom LOW IDLE 1 Setting point w/out bumper spring Spread Speed rpm Rack travel in mm: 5.6 BREAKAWAY Testing: : 200 Speed rpm Minimum rack trave: 7.50 1st version : 300 Speed rpm Rack travel in mm : 5.50...5.80 Rack travel in mm: 2.00 Speed : 380...420 Speed rom Aneroid/Altitude Compensator Test Speed man 1st version Setting : 600 Speed man Remarks: hPa : 800 Pressure : 12.40...12.60 Rack travel mm Measurement 1/min: 600 Speed 1st pressure hPa : 250 Rack travel in m: 11.20...11.40 2nd pressure hPa : 500 Rack travel in m: 11.60...11.80 3rd pressure hPa : 1000
Rack travel in m: 12.60...12.80
4th pressure hPa : 1150 Rack travel in m: 12.90...13.10 5th pressure hPa Rack travel in m: 9.50...9.80 START CUT-OUT 1/min: 220 (240) Speed FUEL DELIVERY CHARACTERISTICS 1st version Aneroid pressure h: 1400 : 1050 Speed rpm Del.quantity cm3/: 201.0...204.0 1000 s: (198.0...207.0) cm3 : 8.00 Spread 1000 s: (12.0)

Aneroid pressure h: -: 500 Del.quantity cm3/: 122.0...124.0 1000 s: (119.0...127.0) cm3 : 8.001000 s: (12.0) 1mm rack travel less than full load rack tr: 12.10 rpm : 1090...1105 STARTING FUEL DELIVERY : 100 Del.quantity cm3/: 200.0...220.0 1000 s: (196.0...224.0)

Note remarks

: MB 9,6 q 5 Test sheet : 02.08.91 Edition

Replaces

: ISO-4113 Test oil

Combination no. : 0 402 646 960

Injection pump

Pump designation : PE6P120A320LS7836

EP type number

: 0 412 626 840

Governor

Governor design. : RQ300/950PA993-7

Governer no. : 0 421 801 617

Customer-spec. information

: MERCEDES-BENZ Customer

: 0M401 LA Engine

: 200.0 1st version kW : 1900 Rated speed

TEST BENCH REQUIREMENTS

Test oil

inlet temp. °C : 38...42

Overflow valve

: 1 417 413 025

Inlet press., bar: 1.50

Overflow

quantity min. 1/h: 100...120

Test nozzle holder

: 1 688 901 105 assembly

Opening .

: 207...210 pressure, bar

Orifice plate

diameter mm : 0,8

: 1 680 750 075 Test Lines

Outside diameter

x Wall thickness

: 8.00X2.50X1000 x Length mm

(A) Injection pump setting values Insp. values in parentheses Set equal delivery quant.

per values

BEGINNING OF DELIVERY

Test pressure, bar: 25...27

Prestroke mm : 5.50...5.60

: (5.45...5.65) Rack travel in mm : 20.00...21.00

Firing order

: 6-3-5-2-4-1

Phasing : 0-60-120-180-240-300

Tolerance $+ - ^{\circ} : 0.50 (0.75)$

Time to cyl. no. : 6

BASIC SETTING

rpm: 600 1st speed

Rack travel in mm : 12.40...12.60

Del.quantity cm3/: 18.2...18.4

100 s: (17.9...18.7)

cm3 : 0.5Spread

100 s: (0.9)

2nd speed rpm : 300.0 Rack travel in mm : 5.3...5.9 Del.quantity cm3/ : 1.6...2.2

100 s: (1.3...2.5)

cm3 : 0.6Spread

100 s: (1.0)

GUIDE SLEEVE POSITION Control-lever position

Degree: -2

rpm : 600

Rack travel in mm : 19.20...20.80

FULL LOAD DELIV. AT FULL LOAD STOP

1st version

rpm : 600 Speed

Aneroid pressure h: 800

Del.quantity : 182.0...187.0)

: 5.00 cm3

1000 : (9.00)

RATED SPEED

Spread

1st version

Setting point:

Rack travel in mm: 20.0

D18

Testing: 1st rack travel in: 12.10 rpm : 990...1005 Speed 2nd rack travel in: 4.00 Speed rpm: 1065...1095 4th rack travel in: 1200 rpm : 0.00...1.50Speed LOW IDLE 1 Setting point w/out bumper spring Speed rpm : 300 Rack travel in mm : 5.6 Testing: Speed rpm : 200 Minimum rack trave: 7.40 : 300 Speed man Rack travel in mm : 5.30...5.90 Rack travel in mm: 2.00 : 370...410 Speed rom Aneroid/Altitude Compensator Test 1st version Setting : 600 Speed rom hPa : 800 Pressure : 12.40...12.60 Rack travel mm Measurement 1/min: 600 Speed 1st pressure hPa : 350
Rack travel in m: 11.20...11.40
2nd pressure hPa : 500
Rack travel in m: 11.60...11.80 3rd pressure hPa : 1000 Rack travel in m: 12.60...12.80 4th pressure hPa : 1150 Rack travel in m: 12.90...13.10 5th pressure hPa Rack travel in m: 10.00...10.30 START CUT-OUT 1/min : 220 (240) Speed FUEL DELIVERY CHARACTERISTICS 1st version Aneroid pressure h: 1400 : 950 Speed man Del.quantity cm3/: 203.0...206.0 1000 s: (200.0...209.0)

: 8.00

1000 s: (12.0)

cm3

Aneroid pressure h: 1400

Speed rpm : 800

Del.quantity cm3/: 202.0...206.0

1000 s: (199.0...209.0)

Spread cm3 : 8.00

1000 s: (12.0)

Aneroid pressure h: —

Speed rpm : 500

Del.quantity cm3/: 122.0...124.0

1000 s: (119.0...127.0)

Spread cm3 : 8.00

1000 s: (12.0)

BREAKAWAY

1st version 1mm rack travel less than

full load rack tr: 12.10 Speed rpm : 990...1005

STARTING FUEL DELIVERY

Speed rpm : 100 Del.quantity cm3/ : 200.0...220.0 1000 s: (196.0...224.0)

Remarks:

:

Spread

Note remarks

: MB 14,7 a27 Test sheet : 21.06.91 Edition

Replaces

: ISO-4113 Test oil

Combination no. : 0 402 648 812

Injection pump

Pump designation : PE8P120A320LS7801

: 0 412 628 806 EP type number

Governor

Governor design. : RQ300/1050PA717

Governer no. : 0 421 801 258

: 13 Cust. part no.

Customer-spec. information

: MERCEDES-BENZ Customer

: 0M442 LA Engine

: 320.0 : 2100 1st version kW Rated speed

TEST BENCH REQUIREMENTS

Test oil

inlet temp. °C : 38...42

Overflow valve

: 1 417 413 025

Inlet press., bar: 1.50

Overflow

quantity min. 1/h: 100...120

Test nozzle holder

: 1 688 901 019 assembly

Opening

pressure, bar : 207...210

Orifice plate

diameter mm : 0.8

Test lines : 1 680 750 067

Outside diameter,

x Wall thickness

: 6.00x1.50x1000 x Length mm

(A) Injection pump setting values Insp. values in parentheses Set equal delivery quant. per values

BEGINNING OF DELIVERY

Test pressure, bar: 25...27

: 5.20...5.30 Prestroke mm

: (5.15...5.35) Rack travel in mm : 20.00...21.00

: 8-7-2-6-3-5-Firing order

Phasing : 0-45-90-135-180-225-

270-315

Tolerance + - ° : 0.50 (0.75)

Time to cyl. no. : 8

BASIC SETTING

1st speed rpm: 600

Rack travel in mm : 14.70...14.90

Del.quantity cm3/: 22.0...22.2

100 s: (21.7...22.5)

Spread cm3 : 0.4

100 s: (0.7)

rpm : 300.02nd speed

Rack travel in mm: 6.1...6.7 Del.quantity cm3/: 1.6...2.2

100 s: (1.3...2.5)

cm3 : 0.5 Spread 100 s: (0.8)

GUIDE SLEEVE POSITION Control-lever position

Degree: -2 Speed rpm : 600

Rack travel in mm : 19.20...20.80

FULL LOAD DELIV. AT FULL LOAD STOP

1st version

Speed rpm : 600 Aneroid pressure h: 680

Del.quantity : 220.0...225.0)

: 4.00 Spread cm3

1000 : (7,00)

RATED SPEED

1st version Setting point: : 600 Speed rpm Rack travel in mm: 20.0 Testing: 1st rack travel in: 14.40 Speed rpm : 1095...1110 2nd rack travel in: 4.00 Speed rpm : 1160...1190 4th rack travel in: 1300 Speed Speed rpm : 0.00...1.50 LOW IDLE 1 Setting point w/out bumper spring : 300 Speed rom Rack travel in mm: 6.4 Testing: Speed rpm : 200 Minimum rack trave: 8.00 rpm : 300 Speed Rack travel in mm : 6.10...6.70 Rack travel in mm: 2.00 : 380...420 Speed rpm TORQUE CONTROL : 0.90 Dimension a mm nd speed rpm : 1050 Rack travel in m: 15.20...15.40 2nd speed rpm : 850 3rd speed Rack travel in m: 15.80...16.10 Aneroid/Altitude Compensator Test 1st version Setting : 600 Speed man Pressure hPa : 680 : 14.70...14.90 Rack travel mm Measurement 1/min: 600 Speed 1st pressure hPa : 310 Rack travel in m: 12.10...12.30 2nd pressure hPa : 470 Rack travel in m: 13.70...13.90
3rd pressure hPa : 820
Rack travel in m: 14.90...15.00
4th pressure hPa : 950 Rack travel in m: 15.60...15.90 5th pressure hPa : -Rack travel in m: 11.30...11.60 START CUT-OUT

1/min: 220 (240) Speed FUEL DELIVERY CHARACTERISTICS 1st version Aneroid pressure h: 1150 : 1050 Speed rpm Del.quantity cm3/: 229.0...232.0 1000 s: (226.0...235.0) Spread cm3: 7.00 1000 s: (10.0) Aneroid pressure h: 1150 Speed rpm Del.quantity cm3/: 247.0...251.0 1000 s: (244.0...254.0) cm3 : 7.00Spread 1000 s: (10.0) Aneroid pressure h: -Speed rpm : 500 Del.quantity cm3/ : 149.0...151.0 1000 s: (146.0...154.0) cm3 : 7.00Spread 1000 s: (10.0) **BREAKAWAY** 1st version 1mm rack travel less than full load rack tr: 14.40 rpm : 1095...1110 Speed STARTING FUEL DELIVERY rpm : 100 Speed Del.quantity cm3/: 200.0...220.0 1000 s: (196.0...224.0) Remarks:

Note remarks

: MB 14,7 a28 Test sheet : 21.06.91 Edition

Replaces

Test oil : ISO-4113

: 0 402 648 824 Combination no.

Injection pump

Pump designation : PE8P120A320LS7801 : 0 412 628 806 EP type number

Governor

Governor design. : RQV300...1050PA797

: 0 421 813 532 Governer no.

Cust. part no. : T3

Customer-spec. information

Customer : MERCEDES-BENZ

: 0M442 LA Engine

: 320.0 : 2100 1st version kW Rated speed

TEST BENCH REQUIREMENTS

Test oil

inlet temp. °C : 38...42

Overflow valve

: 1 417 413 025

Inlet press., bar: 1.50

Overflow

quantity min. 1/h: 100...120

Test nozzle holder

: 1 688 901 019 assembly

Opening

: 207...210 pressure, bar

Orifice plate

diameter mm : 0,8

Test lines : 1 680 750 067

Outside diameter

x Wall thickness

x Length mm : 6.00X1.50X1000 (A) Injection pump setting values Insp. values in parentheses Set equal delivery quant. per values

BEGINNING OF DELIVERY

Test pressure, bar: 25...27

: 5.20...5.30 Prestroke mm

: (5.15...5.35)

Rack travel in mm : 20.00...21.00

Firing order : 8-7-2-6-3-5-4-1

: 0-45-90-135-180-225-Phasina

270-315

Tolerance + - ° : 0.50 (0.75)

Time to cyl. no. : 8

BASIC SETTING

rpm: 600 1st speed

Rack travel in mm : 14.70...14.90

Del.quantity cm3/: 22.0...22.2

100 s: (21.7...22.5)

cm3 : 0.4Spread

100 s: (0.7)

rpm : 300.0 2nd speed Rack travel in mm: 6.2...6.6 Del.quantity cm3/: 1.6...2.2 100 s: (1.3...2.5)

cm3 : 0.5 Spread 100 s: (0.8)

(B) Setting of injection pump with governor

GUIDE SLEEVE TRAVEL

1st speed rpm : 300 1.20...1.40 travel mm 2nd speed 600 rpm

4.90...5.10 travel mm

1075 3rd speed rpm 7.40...7.60 travel mm

: 1100 4th speed man : 8.00...8.20 travel mm

: 1150 5th speed rpm : 9.00...9.20 travel mm

GUIDE SLEEVE POSITION Control-lever position

Degree: -1 rpm : 1125 1st pressure hPa : 310 Rack travel in m: 13.10...13.30 Speed Rack travel in mm: 16.50...18.00 2nd pressure hPa : 470 Rack travel in m: 13.70...13.90 FULL LOAD DELIV. AT FULL LOAD STOP 3rd pressure hPa : 820 Rack travel in m: 14.90...15.00 4th pressure hPa : 1100 Rack travel in m: 15.90...16.00 1st version Speed rpm : 600 Aneroid pressure h: 680 : 220.0...222.0 5th pressure hPa : Del.quantity 1000 : (217.0...225.0) Rack travel in m: 11.40...11.60 : 4.00 €m3 Spread 1000 : (7.00) START CUT-OUT 1/min: 220 (240) RATED SPEED Speed 1st version FUEL DELIVERY CHARACTERISTICS Control Lever position degrees: 117...125 1st version Aneroid pressure h: 1150 Testing: rpm : 1050 1st rack travel in: 14.20 Speed rpm : 1095...1110 Del.quantity cm3/: 229.0...232.0 Speed 1000 s: (226.0...235.0) 2nd rack travel in: 4.00 rpm : 1160...1190 cm3 : 7.00 Spread Speed 4th rack travel in: 1300 1000 s: (10.0) rpm : 0.00...1.50Aneroid pressure h: 1150 Speed Speed rpm : 850 Del.quantity cm3/: 247.0...251.0 1000 s: (244.0...254.0) LOW IDLE 1 Control lever position degrees: 82...90 Spread cm3 : 7.00 1000 s: (10.0) Aneroid pressure h: -Testing: rpm : 500 Speed : 100 Speed rpm Del.quantity cm3/: 149.0...151.0 1000 s: (146.0...154.0) Spread cm3 : 7.00 Minimum rack trave: 7.90 Speed rpm Rack travel in mm : 6.20...6.40 1000 s: (10.0) CONSTANT REGULATION rpm : 300...500 Speed **BREAKAWAY** TORQUE CONTROL Dimension a mm 1st version : 0.40 2nd speed rpm : 1050 1mm rack travel less than Rack travel in m: 15.20...15.40 d speed rpm : 850 full load rack tr: 14.20 Speed rpm : 1095...1110 3rd speed Rack travel in m: 15.80...16.10 Speed STARTING FUEL DELIVERY Aneroid/Altitude Compensator Test rpm Speed : 100 Del.quantity cm3/: 200.0...220.0 1000 s: (196.0...224.0) 1st version Setting : 600 Speed rpm hPa : 680 Remarks: Pressure Rack travel mm : 13.10...13.30 Measurement Speed 1/min: 600

023

Note remarks

Test sheet : MB 14,7 a29 : 21.06.91 Edition

Replaces Test oil : ISO-4113

Combination no. : 0 402 648 825

Injection pump

Pump designation : PE8P120A320LS7801 : 0 412 628 806 EP type number

Governor

: RQV300...1050PA797-3 Governor design.

: 0 421 813 627 Governer no.

Cust. part no. : T3

Customer-spec. information

: MERCEDES-BENZ Customer

Engine : 0M442 A

: 260.0 1st version kW Rated speed : 2100

TEST BENCH REQUIREMENTS

Test oil

inlet temp. °C : 38...42

Overflow valve

: 1 417 413 025

Inlet press., bar: 1.50

Overflow

quantity min. 1/h: 100...120

Test nozzle holder

: 1 688 901 019 assembly

Opening

: 207...210 pressure, bar

Orifice plate

: 0,8 diameter mm

: 1 680 750 067 Test Lines

Outside diameter

x Wall thickness

: 6.00x1.50x1000 x Length mm

(A) Injection pump setting values Insp. values in parentheses Set equal delivery quant. per values

BEGINNING OF DELIVERY

Test pressure, bar: 25...27

Prestroke mm : 5.20...5.30

: (5.15...5.35)

Rack travel in mm : 20.00...21.00 Firing order : 8-7-2-6-3-

: 0-45-90-135-180-225-Phasing

270-315

: 0.50 (0.75) Tolerance + - °

Time to cyl. no. : 8

BASIC SETTING

rpm: 500 1st speed

Rack travel in mm : 14.00...14.20

Del.quantity cm3/: 20.1...20.3

100 s: (19.8...20.6)

Spread cm3 : 0.4

100 s: (0.7)

rpm : 300.02nd speed

Rack travel in mm: 6.0...6.4 Del.quantity cm3/: 1.6...2.2

100 s: (1.3...2.5) cm3 : 0.5

Spread

100 s: (0.8)

(B) Setting of injection pump with governor

GUIDE SLEEVE TRAVEL

rpm : 300 1st speed

: 1.20...1.40 travel mm : 600 2nd speed rpm

: 4.90...5.10 travel mm : 1075

3rd speed man travel mm : 7.40...7.60

: 1100 4th speed rpm

travel mm : 8.00...8.20

: 1150 5th speed rpm : 9.00...9.20 travel mm

GUIDE SLEEVE POSITION Control-lever position Degree: -1 Speed rpm : 1125 Rack travel in mm : 15.20...17.80 Measurement 1/min: 600 Speed 1st pressure hPa : 300 Rack travel in m: 12.30...12.50 FULL LOAD DELIV. AT FULL LOAD STOP 2nd pressure hPa : 400 Rack travel in m: 13.30...13.60 1st version 3rd pressure hPa : 850 rpm : 500 Speed Rack travel in m: 14.10...14.20 * Aneroid pressure h: 650 4th pressure hPa : -: 201.0...203.0 Del.quantity 1000 : (198.0...206.0) Rack travel in m: 11.40...11.70 Cm3 : 4.00 Spread 1000 : (7.00)START CUT-OUT 1/min : 220 (240) RATED SPEED Speed FUEL DELIVERY CHARACTERISTICS 1st version Control Lever position degrees: 114...122 1st version Aneroid pressure h: 1050 Testing: Speed rpm : 1050 Del.quantity cm3/ : 180.0...183.0 1000 s: (177.0...186.0) 1st rack travel in: 11.70 rpm : 1090...1100 Speed 2nd rack travel in: 4.00 cm3 : 7.00rpm : 1155...1185 Speed Spread 4th rack travel in: 1300 1000 s: (10.0) Aneroid pressure h: 1050 Speed rom : 0.00...1.00Speed rpm : 700 Del.quantity cm3/: 215.0...219.0 LOW IDLE 1 1000 s: (212.0...222.0) cm3 : 7.00 Control lever position degrees: 80...88 Spread 1000 s: (10.0) Aneroid pressure h: 1050 Testing: Speed rpm : 200 Minimum rack trave: 7.70 : 850 Speed rpm : 300 rpm Speed Rack travel in mm : 6.00...6.40 1000 s: (10.0) Aneroid pressure h: -CONSTANT REGULATION Speed rpm : 500 Del.quantity cm3/: 149.0...151.0 rpm : 300...450 Speed 1000 s: (146.0...154.0) TORQUE CONTROL cm3 : 7.00 : 1.40 Dimension a mm Spread 1000 s: (10.0) 2nd speed rpm : 1050 Rack travel in m: 12.70...12.90 3rd speed rpm : 850 Rack travel in m: 13.70...14.00 4th speed rpm : 700 **BREAKAWAY** Rack travel in m: 14.30...14.50 1st version 1mm rack travel less than Aneroid/Altitude full load rack tr: 11.70 Speed rpm : 1090...1100 Compensator Test Speed 1st version STARTING FUEL DELIVERY Setting Speed : 600 mom. Pressure hPa : 650 rpm : 100 Del.quantity cm3/: 175.0...190.0 1000 s: (171.0...194.0) : 14.00...14.20 Rack travel mm

* Increase in control-rod travel with respect to setting at least 0.1 mm

Note remarks

Test sheet : MB 14,7 a30 : 21.06.91 Edition

Replaces

Test oil : ISO-4113

Combination no.

: 0 402 648 833

Injection pump

Pump designation: PE8P120A320LS7801-1 : 0 412 628 818

EP type number

Governor

Governor design. : RQV350...1050PA866-3

Governer no.

: 0 421 813 703

Cust. part no.

: T3

Customer-spec. information

Customer

: MERCEDES-BENZ

Engine

: 0M442 A

1st version kW

: 260.0

Rated speed

: 2100

TEST BENCH REQUIREMENTS

Test oil

inlet temp. °C

: 38...42

Overflow valve

: 1 417 413 025

Inlet press., bar: 1.50

Overflow

quantity min. 1/h: 100...120

Test nozzle holder

: 1 688 901 019 assembly

Opening

: 207...210 pressure, bar

Orifice plate

diameter mm : 0,8

: 1 680 750 067 Test lines

Outside diameter

x Wall thickness

: 8.00x2.50x1000 x Length mm

(A) Injection pump setting values Insp. values in parentheses Set equal delivery quant. per values

BEGINNING OF DELIVERY

Test pressure, bar: 25...27

Prestroke mm

: 5.20...5.30 : (5.15...5.35)

Rack travel in mm : 20.00...21.00

Firing order

: 8- 7- 2- 6- 3- 5-

Phasing

: 0-45-90-135-180-225-

270-315

: 0.50 (0.75) Tolerance + - °

Time to cyl. no. : 8

PASIC SETTING

1st speed

rpm : 1050

Rack travel in mm : 12.80...12.90

Del.quantity cm3/: 18.1...18.3

100 s: (17.8...18.6)

Spread

cm3 : 0.5

100 s: (0.9)

rpm : 350.0

2nd speed Rack travel in mm: 5.6...6.0

Del.quantity cm3/: 1.5...2.1

100 s: (1.2...2.4)

Spread

cm3 : 0.6

100 s: (1.0)

(B) Setting of injection pump with governor

GUIDE SLEEVE TRAVEL

1st speed rpm : 300

: 1.20...1.40 travel mm

2nd speed

rpm : 600

travel mm

: 4.90...5.10

3rd speed

: 1100 rpm

: 8.00...8.50 travel mm

: 1170 4th speed rpm

: 9.20...9.80 travel mm

GUIDE SLEEVE POSITION Control-lever position

Degree: -1

Speed

rpm : 1090

Rack travel in mm : 16.50...18.00 FULL LOAD DELIV. AT FULL LOAD STOP 1st version rpm : 1050 Speed Aneroid pressure h: 1100 Del.quantity : 181.0...186.0) cm3 : 5.00 Spread 1000 : (9.00) RATED SPEED 1st version Control lever position degrees: 118...126 Testina: 1st rack travel in: 11.80 rpm : 1090...1100 Speed 2nd rack travel in: 4.00 rpm : 1160...1190 Speed 4th rack travel in: 1300 rom : 0.00...1.50 Speed LOW IDLE 1 Control lever position degrees: 67...75 Testina: rpm : 250 Speed Minimum rack trave: 7.30 nom : 350 Rack travel in mm : 5.60...5.80 CONSTANT REGULATION rpm : 350...550 Speed TORQUE CONTROL Dimension a mm : 1.60 Torque control curve - 1st version 1st speed rpm : 1050 Rack travel in m: 12.80...12.90 rpm : 750 2nd speed Rack travel in m: 14.40...14.60 3rd speed rpm : 950 Rack travel in m: 13.50...13.60 4th speed rpm : 830 Rack travel in m: 14.30...14.50 Aneroid/Altitude Compensator Test 1st version Setting Speed rom : 600 hPa : -Pressure

Rack travel mm : 11.20...11.50

Measurement 1/min : 600 Speed 1st pressure hPa : 420 Rack travel in m: 11.90...12.10 2nd pressure hPa : 600 Rack travel in m: 13.60...13.80 START CUT-OUT 1/min : 270 (250) Speed FUEL DELIVERY CHARACTERISTICS 1st version Aneroid pressure h: 1100 rpm : 700 Speed Del.quantity cm3/: 213.0...217.0 1000 s: (210.0...220.0) Spread cm3 : 8.001000 s: (12.0) Aneroid pressure h: 1100 Speed : 1050 rom Del.quantity cm3/: 152.0...154.0 * 1000 s: (149.0...157.0) cm3 : 8.00 Spread 1000 s: (12.0) Aneroid pressure h: -Speed rpm : 500 Del.quantity cm3/ : 143.0...145.0 1000 s: (140.0...148.0) cm3 : 8.00 Spread 1000 s: (12.0) **BREAKAWAY** 1st version 1mm rack travel less than full load rack tr: 11.80 rpm : 1090...1100 Speed STARTING FUEL DELIVERY Speed rpm : 100 Del.quantity cm3/: 180.0...200.0 1000 s: (176.0...204.0) * = Set at reduced-delivery stop.

Note remarks

: MB 14,7 a31 : 21.06.91 Test sheet Edition

Replaces

: ISO-4113 Test oil

Combination no. : 0 402 648 841

Injection pump

Pump designation : PE8P120A320LS7801-1

: 0 412 628 818 EP type number

Governor

Governor design. : RQ300/1050PA762-5

: O 421 801 399 Governer no.

: T3 Cust. part no.

Customer-spec. information

: MERCEDES-BENZ Customer

Engine : OM442 A

1st version kW : 260.0 : 2100 Rated speed

TEST BENCH REQUIREMENTS

Test oil

inlet temp. °C : 38...42

Overflow valve

: 1 417 413 025

Inlet press., bar: 1.50

Overflow

quantity min. 1/h: 100...120

Test nozzle holder

: 1 688 901 019 assembly

Opening.

: 207...210 pressure, bar

Orifice plate

diameter mm : 0,8

Test lines : 1 680 750 067

Outside diameter

x Wall thickness

x Length mm : 6.00X1.50X1000 (A) Injection pump setting values Insp. values in parentheses Set equal delivery quant. per values

BEGINNING OF DELIVERY

Test pressure, bar: 25...27

: 5.20...5.30 : (5.15...5.35) Prestroke mm

Rack travel in mm : 20.00...21.00 Firing order : 8-7-2-6-3-5-4-1

Phasina : 0-45-90-135-180-225-

270-315

Tolerance + - ° : 0.50 (0.75)

Time to cyl. no. : 8

BASIC SETTING

rpm : 500 1st speed

Rack travel in mm : 14.00...14.20

Del.quantity cm3/: 20.3...20.5

100 s: (20.0...20.8)

cm3 : 0.4Spread

100 s: (0.7)

rpm : 300.0 2nd speed Rack travel in mm : 6.0...6.6 Del.quantity cm3/ : 1.6...2.2

100 s: (1.3...2.5) cm3 : 0.5

Spread

100 s: (0.8)

GUIDE SLEEVE POSITION Control-lever position

Degree: -2

rpm : 600 Speed

Rack travel in mm : 19.20...20.80

FULL LOAD DELIV. AT FULL LOAD STOP

1st version

Speed rpm : 500 Aneroid pressure h: 650

: 203.0...205.0 Del.quantity

1000 : (200.0...208.0)

: 4.00 Spread cm3

1000 : (7.00)

RATED SPEED

1st version Setting point: Speed rpm : 600 Rack travel in mm: 20.0 Testina: 1st rack travel in: 11.70 rpm : 1095...1110 Speed 2nd rack travel in: 4.00 Speed rpm : 1170...1200 4th rack travel in: 1300 rpm : 0.00...1.50Speed LOW IDLE 1 Setting point w/out bumper spring rpm Rack travel in mm : 6.3 Testing: : 200 Speed rom Minimum rack trave: 8.00 : 300 rpm Rack travel in mm : 6.20...6.40 Rack travel in mm : 2.00 Speed : 380...420 rpm TORQUE CONTROL Dimension a mm : 0.75 : 1050 2nd speed rpm Rack travel in m: 12.70...12.90 3rd speed rpm : 850 Rack travel in m: 13.70...14.00 ch speed rpm : 700 Rack travel in m: 14.40...14.60 4th speed Aneroid/Altitude Compensator Test 1st version Settina Speed : 600 rpm Pressure hPa : 650 : 14.00...14.20 Rack travel mm Measurement Speed $1/\min : 600$ 1st pressure hPa : 300 Rack travel in m: 12.30...12.50 2nd pressure hPa : 400 Rack travel in m: 13.30...13.60 3rd pressure hPa : 850 Rack travel in m: 14.10...14.20

1/min: 220 (240) Speed FUEL DELIVERY CHARACTERISTICS 1st version Aneroid pressure h: 1050 : 1050 Speed rpm Del.quantity cm3/: 180.0...183.0 1000 s: (177.0...186.0) cm3 : 7.00 Spread 1000 s: (10.6) Aneroid pressure h: 1050 : 700 Speed rpm Del.quantity cm3/: 215.0...219.0 1000 s: (212.0...222.0) Spread cm3 : 7.00 1000 s: (10.0) Aneroid pressure h: 1050 Speed rpm Del.quantity cm3/: 206.0...210.0 1000 s: (203.0...213.0) cm3 : 7.00Spread 1000 s: (10.0) Aneroid pressure h: rpm : 500 Speed Del.quantity cm3/: 149.0...151.0 1000 s: (146.0...154.0) Spread cm3: 7.00 1000 s: (10.0) **BREAKAWAY** 1st version 1mm rack travel less than full load rack tr: 11.70 rpm : 1095...1110 Speed

STARTING FUEL DELIVERY

Speed rpm : 100 Del.quantity cm3/: 175.0...190.0 1000 s: (171.0...194.0)

* Increase in control-rod travel with respect to setting at least 0.1 mm

4th pressure hPa : -

Rack travel in m: 11.40...11.70

Note remarks

Test sheet : MB 14,7 j 4 Edition : 21.06.91

Replaces

: ISO-4113 Test oil

Combination no. : 0 402 648 844

Injection pump

Pump designation : PE8P120A320LS7816 : 0 412 628 829 EP type number

Governor

Governor design. : RQ300/1050PA717-2

Governer no.

: 0 421 801 439

: 13 Cust. part no.

Customer-spec. information

: MERCEDES-BENZ Custamer

: 0M442 LA Engine

: 353.0 1st version kW : 2100 Rated speed

TEST BENCH REQUIREMENTS

Test oil

inlet temp. °C : 38...42

Overflow valve

: 1 417 413 025

Inlet press., bar: 1.50

Overflow

quantity min. 1/h: 100...120

Test nozzle holder

: 1 688 901 019 assembly

Openina |

: 207...210 pressure, bar

Orifice plate

diameter mm : 0,8

Test Lines : 1 680 750 067

Outside diameter

x Wall thickness

: 6.00X1.50X1000 x Length mm

(A) Injection pump setting values Insp. values in parentheses Set equal delivery quant. per values

BEGINNING OF DELIVERY

Test pressure, bar: 25...27

: 5.20...5.30 Prestroke mm

: (5.15...5.35)

Rack travel in mm : 20.00...21.00 Firing order : 8-7-2-6-3-5-

: 0-45-90-135-180-225-Phasing

270-315

: 0.50 (0.75) Tolerance + - °

Time to cyl. no. : 8

BASIC SETTING

1st speed rpm: 600

Rack travel in mm : 13.60...13.80

Del.guantity cm3/: 23.4...23.7

100 s: (23.1...24.0)

cm3 : 0.4Spread

100 s: (0.7)

rpm : 300.0 2nd speed Rack travel in mm : 5.9...6.5 Del.quantity cm3/ : 1.6...2.2

100 s: (1.3...2.5) cm3 : 0.5

Spread

100 s: (0.8)

GUIDE SLEEVE POSITION Control-lever position

Degree: -2

rpm : 600 Speed

Rack travel in mm : 19.20...20.80

FULL LOAD DELIV. AT FULL LOAD STOP

1st version

Speed rpm : 600 Aneroid pressure h: 900

Del.quantity : 234.0...237.0 1000 : (231.0...240.0)

: 4.00 Spread cm3

1000 : (7.00)

RATED SPEED

1st version

Setting point:

Speed **FOR** Rack travel in mm: 20.0

Testing:

1st rack travel in: 13.40

rpm : 1095...1110 Speed

2nd rack travel in: 4.00

rpm : 1150...1180 Speed

4th rack travel in: 1300

Speed rpm : 0.00...1.50

LOW IDLE 1

Setting point w/out bumper spring

rpm Rack travel in mm: 6.2

Testing:

Speed rpm : 200 Minimum rack trave: 7.80

: 300 rom

Rack travel in mm : 5.90...6.50

Rack travel in mm : 2.00

rom : 380...420 Speed

TORQUE CONTROL

Dimension a mm : 0.40

rpm : 1050 2nd speed

Rack travel in m: 14.40...14.60

3rd speed rpm : 850

Rack travel in m: 15.00...15.30

Aneroid/Altitude Compensator Test

1st version

Settina

Speed : 600 rpm Pressure hPa : 900

: 13.60...13.80 Rack travel mm

Measurement

1/min: 600 Speed

1st pressure hPa : 350 Rack travel in m: 12.10...12.30

2nd pressure hPa : 650

Rack travel in m: 12.80...13.00

3rd pressure hPa : 1050

Rack travel in m: 13.70...13.90 *

4th pressure hPa : 1350

Rack travel in m: 14.50...14.70

5th pressure hPa : -

Rack travel in m: 10.20...10.50

START CUT-OUT

1/min: 220 (240) Speed

FUEL DELIVERY CHARACTERISTICS

1st version

Aneroid pressure h: 1600

: 1050 Speed rpm

Del.quantity cm3/: 252.0...256.0 1000 s: (249.0...259.0)

cm3 : 7.00 Spread

1000 s: (10.0)

Aneroid pressure h: 1600

Speed rpm : 850 Del.quantity cm3/: 270.0...274.0

1000 s: (267.0...277.0)

cm3 : 7.00Spread

1000 s: (10.0)

Aneroid pressure h: -

Speed rpm : 500 Del.quantity cm3/ : 149.0...151.0 1000 s: (146.0...154.0)

cm3 : 7.00Spread

1000 s: (10.0)

BREAKAWAY

1st version

1mm rack travel less than

full load rack tr: 13.40

rpm : 1095...1110 Speed

STARTING FUEL DELIVERY

Speed rpm

Del.quantity cm3/: 240.0...260.0 1000 s: (236.0...264.0)

* Increase in control-rod travel with respect to setting at least 0.1 mm

Note remarks

: MB 14,7 j-2 Test sheet : 28.06.91 Edition : 3.6.91 Replaces : ISO-4113 Test oil

: 0 402 648 844A Combination no.

Injection pump

Pump designation : PE8P120A320LS7816 EP type number : 0 412 628 829

Governor

: RQ300/1050PA717-2 Governor design. : 0 421 801 439 Governer no.

Customer-spec. information

: MERCEDES-BENZ Customer

: 0M442 LA Engine

TEST BENCH REQUIREMENTS

Test oil

inlet temp. °C : 38...42

Overflow valve

: 1 417 413 025

Inlet press., bar: 1.50

Overflow

quantity min. 1/h: 100...120

Test nozzle holder

: 1 688 901 105 assembly

Openina .

: 207...210 pressure, bar

Orifice plate

diameter mm : 0.8

: 1 680 750 075 Test Lines

Outside diameter

x Wall thickness

: 8.00x2.50x1000 x Length mm

(A) Injection pump setting values Insp. values in parentheses Set equal delivery quant.

per values

BEGINNING OF DELIVERY

Test pressure, bar: 25...27

: 5.20...5.30 : (5.15...5.35) Prestroke mm

Rack travel in mm : 20.00...21.00 Firing order : 8-7-2-6-3-5-

Phasing : 0-45-90-135-180-225-

270-315

Tolerance + - ° : 0.50 (0.75)

Time to cyl. no. : 8

BASIC SETTING

rpm: 600 1st speed

Rack travel in mm : 13.10...13.30

Del.guantity cm3/: 22.9...23.2

100 s: (22.6...23.5)

cm3 : 0.4Spread

100 s: (0.7)

2nd speed rpm : 300.0 Rack travel in mm : 5.9...6.5

Del.quantity cm3/: 1.6...2.2100 s: (1.3...2.5)

cm3 : 0.5

Spread 100 s: (0.8)

GUIDE SLEEVE POSITION

Control-lever position Degree: -2

rpm : 600 Speed

Rack travel in mm : 19.20...20.80

FULL LOAD DELIV. AT FULL LOAD STOP

1st version

rpm : 600 Speed

Aneroid pressure h: 800

229.0...232.0 1000 : (226.0...235.0) Del.quantity

cm3 : 4.00 Spread

1000 : (7.00)

RATED SPEED

1st version

Setting point:

rpm Rack travel in mm: 20.0

Testing:

1st rack travel in: 12.90 rpm : 1050 Speed Del.quantity cm3/: 241.0...245.0 rom : 1095...1110 Speed 1000 s: (238.0...248.0) 2nd rack travel in: 4.00 Speed rpm : 1145...1175 4th rack travel in: 1300 cm3 : 7.00Spread 1000 s: (10.0) Aneroid pressure h: 1600 rpm : 0.00...1.50Speed Speed rpm : 850 Del.quantity cm3/ : 254.0...258.0 LOW IDLE 1 1000 s: (251.0...261.0) Setting point w/out bumper spring cm3 : 7.00 rpm : 300 Spread Speed Rack travel in mm: 6.2 1000 s: (10.0) Aneroid pressure h: -Speed rpm : 500 Del.quantity cm3/ : 145.0...147.0 Testing: : 200 Speed COM 1000 s: (142.0...150.0) Minimum rack trave: 7.80 rpm : 300 Spread cm3 : 7.00Rack travel in mm: 5.90...6.50 Rack travel in mm: 2.00 Speed rpm: 380...420 1000 s: (10.0) **BREAKAWAY** TORQUE CONTROL Dimension a mm : 0.40 1st version 2nd speed rpm : 1050 1mm rack travel less than Rack travel in m: 13.90...14.60 3rd speed rpm : 850 full load rack tr: 12.90 rpm : 1095...1110 Rack travel in m: 14.50...14.80 Speed STARTING FUEL DELIVERY Aneroid/Altitude Compensator Test rpm : 100 Speed Del.quantity cm3/: 240.0...260.0 1000 s: (236.0...264.0) 1st version Setting : 600 Speed rpm hPa : 800 Remarks: Pressure : 13.10...13.30 Rack travel mm Measurement $1/\min : 600$ Speed 1st pressure hPa : 350 Rack travel in m: 11.30...11.50 2nd pressure hPa : 550
Rack travel in m: 12.40...12.60
3rd pressure hPa : 950 Rack travel in m: 13.30...13.50 4th pressure hPa : 1250 Rack travel in m: 14.10...14.30 5th pressure hPa : -Rack travel in m: 10.20...10.50 START CUT-OUT 1/min : 220 (240) Speed FUEL DELIVERY CHARACTERISTICS 1st version Aneroid pressure h: 1600

Note remarks

: MB 14,7 j 3 : 05.07.91 Test sheet Edition : 3.6.91 Replaces : ISO-4113 Test oil

Combination no. : 0 402 648 844A

Injection pump

Pump designation : PE8P120A320LS7816 EP type number : 0 412 628 829

Governor

Governor design. : RQ300/1050PA717-2 : 0 421 801 439 Governer no.

Cust. part no. : T3

Customer-spec. information

: MERCEDES-BENZ Customer

: OM442 LA Engine

TEST BENCH REQUIREMENTS

Test oil

inlet temp. °C : 38...42

Overflow valve

: 1 417 413 025

Inlet press., bar: 1.50

Overflow

quantity min. 1/h: 100...120

Test nozzle holder

assembly : 1 688 901 019

Opening

: 207...210 pressure, bar

Orifice plate

diameter mm : 0,8

Test Lines : 1 680 750 067

Outside diameter

x Wall thickness

: 6.00X1.50X1000 x Length mm

(A) Injection pump setting values Insp. values in parentheses Set equal delivery quant.

per values ____

BEGINNING OF DELIVERY

Test pressure, bar: 25...27

: 5.20...5.30 Prestroke mm

: (5.15...5.35)

Rack travel in mm : 20.00...21.00 Firing order : 8-7-2-6-3-5-

Phasing : 0-45-90-135-180-225-

270-315

: 0.50 (0.75) Tolerance + - °

Time to cyl. no. : 8

BASIC SETTING

1st speed rpm: 600

Rack travel in mm : 13.10...13.30

Del.quantity cm3/: 22.5...22.8

100 s: (22.2...23.1)

cm3 : 0.4Spread

100 s: (0.7)

rpm : 300.0 2nd speed

Rack travel in mm: 5.9...6.5 Del.quantity cm3/: 1.6...2.2

100 s: (1.3...2.5)

cm3 : 0.5Spread

100 s: (0.8)

GUIDE SLEEVE POSITION Control-lever position

Degree: -2

rpm : 600

Rack travel in mm : 19.20...20.80

FULL LOAD DELIV. AT FULL LOAD STOP

1st version

rpm : 600 Speed

Aneroid pressure h: 800

Del.quantity : 225.0...228.0 1000 : (222.0...231.0)

: 4.00 Spread cm3

1000 : (7.00)

RATED SPEED

1st version

Setting point:

Speed rpm

Rack travel in mm: 20.0

1st rack travel in: 12.90 rpm : 1095...1110 Speed 2nd rack travel in: 4.00 rpm : 1145...1175 Speed 4th rack travel in: 1300 rpm : 0.00...1.50 Speed LOW IDLE 1 Setting point w/out bumper spring rpm : 300 Rack travel in mm: 6.2 Testing: : 200 Speed COM Minimum rack trave: 7.80 : 300 Speed rpm Rack travel in mm : 5.90...6.50 Rack travel in mm: 2.00 : 380...420 Speed rom TORQUE CONTROL Dimension a mm : 0.40 2nd speed rpm : 1050 Rack travel in m: 13.90...14.60 3rd speed rpm : 850 Rack travel in m: 14.50...14.80 Aneroid/Altitude Compensator Test 1st version Setting Speed rom : 600 hPa : 800 Pressure : 13.10...13.30 Rack travel mm Measurement 1/min: 600 Speed 1st pressure hPa : 350 Rack travel in m: 11.50...11.70 2nd pressure hPa : 550 Rack travel in m: 12.40...12.60 3rd pressure hPa : 950 Rack travel in m: 13.30...13.50 4th pressure hPa : 1250 Rack travel in m: 14.10...14.30 5th pressure hPa : -Rack travel in m: 10.20...10.50 START CUT-OUT 1/min: 220 (240) Speed FUEL DELIVERY CHARACTERISTICS

Testina:

1st version Aneroid pressure h: 1600 rpm : 1050 Speed Del.quantity cm3/: 243.0...247.0 1000 s: (240.0...250.0) : 7.00 Spread cm3 1000 s: (10.0) Aneroid pressure h: 1600 Speed : 850 rpm Del.quantity cm3/: 261.0...265.0 1000 s: (258.0...268.0) cm3 : 7.00 Spread 1000 s: (10.0) Aneroid pressure h: -Speed rpm : 500 Del.quantity cm3/: 145.0...147.0 1000 s: (142.0...150.0) cm3 : 7.00Spread 1000 s: (10.0)

BREAKAWAY

1st version 1mm rack travel less than

full load rack tr: 12.90 Speed rpm : 1095...1110

STARTING FUEL DELIVERY

Speed rpm : 100 Del.quantity cm3/ : 240.0...260.0

1000 s: (236.0...264.0)

Remarks:

Note remarks

Test sheet : MB 14,7 k 4 Edition : 21.06.91

Replaces

Test oil : ISO-4113

Combination no. : 0 402 648 845

Injection pump

Pump designation : PE8P120A320LS7816 : 0 412 628 829 EP type number

Governor

Governor design. : RQV300...1050PA797-5

: 0 421 813 702 Governer no.

: T3 Cust. part no.

Customer-spec. information

: MERCEDES-BENZ Customer

: 0M442 LA Engine

: 353.0 1st version kW : 2100 Rated speed

TEST BENCH REQUIREMENTS

Test oil

inlet temp. °C : 38...42

Overflow valve

: 1 417 413 025

Inlet press., bar: 1.50

Overflow

quantity min. 1/h: 100...120

Test nozzle holder

assembly : 1 688 901 019

Opening

: 207...210 pressure, bar

Orifice plate

diameter mm : 0,8

: 1 680 750 067 Test Lines

Outside diameter

x Wall thickness

: 6.00X1.50X1000 x Length mm

(A) Injection pump setting values Insp. values in parentheses Set equal delivery quant. per values

BEGINNING OF DELIVERY

Test pressure, bar: 25...27

: 5.20...5.30 Prestroke mm

: (5.15...5.35)

Rack travel in mm : 20.00...21.00

Firing order : 8-7-2-6-3-5-4-1

: 0-45-90-135-180-225-Phasing

270-315

Tolerance + - ° : 0.50 (0.75)

Time to cyl. no. : 8

BASIC SETTING

rpm: 600 1st speed

Rack travel in mm : 13.60...13.80

Del.quantity cm3/: 23.4...23.6

100 s: (23.1...23.9)

cm3 : 0.4Spread

100 s: (0.7)

rpm : 300.0 2nd speed Rack travel in mm: 5.9...6.5 Del.quantity cm3/: 1.6...2.2

100 s: (1.3...2.5)

cm3 : 0.5 Spread 100 s: (0.8)

(B) Setting of injection pump with governor

GUIDE SLEEVE TRAVEL

rpm : 300 1st speed

1.20...1.40 travel mm

2nd speed 800 Man

5.80...6.10 travel mm : 1120

3rd speed man

: 8.20...8.80 travel mm

: 1180 4th speed rpm

: 9.60...10.40 travel mm

GUIDE SLEEVE POSITION Control-lever position

Degree: -1 Speed rpm : 1100

Rack travel in mm : 15.20...17.80 FULL LOAD DELIV. AT FULL LOAD STOP 1st version rpm : 600 Speed Aneroid pressure h: 900 Del.quantity : 234.0...236.0 1000 : (231.0...239.0) : 4.00 Spread cm3 1000 : (7.00) RATED SPEED 1st version Control lever position degrees: 117...125 Testing: 1st rack travel in: 13.40 rpm : 1090...1100 Speed 2nd rack travel in: 4.00 rpm : 1160...1190 Speed 4th rack travel in: 1300 rpm : 0.00...1.00 Speed LOW IDLE 1 Control lever position degrees: 82...90 Testing: Speed : 200 rpm Minimum rack trave: 8.00 : 300 Speed rpm Rack travel in mm : 5.90...6.50 CONSTANT REGULATION rpm : 300...500 Speed TORQUE CONTROL Dimension a mm : 1.30 : 1050 2nd speed rom Rack travel in m: 14.40...14.60 3rd speed rpm : 800 Rack travel in m: 14.90...15.10 Aneroid/Altitude Compensator Test 1st version Setting : 600 Speed rpm hPa : 900 Pressure Rack travel mm : 13.60...13.80 Measurement 1/min: 600 Speed 1st pressure hPa : 350

E10

Rack travel in m: 11.10...11.30
2nd pressure hPa : 650
Rack travel in m: 12.80...13.00
3rd pressure hPa : 1050
Rack travel in m: 13.70...13.90 * 4th pressure hPa : 1350 Rack travel in m: 14.50...14.70 5th pressure hPa : -Rack travel in m: 10.20...10.50 START CUT-OUT 1/min : 220 (240) Speed FUEL DELIVERY CHARACTERISTICS 1st version Aneroid pressure h: 1600 rpm_ : 1050 Speed Del.quantity cm3/: 252.0...256.0 1000 s: (249.0...259.0) Spread cm3 : 7.001000 s: (10.0) Aneroid pressure h: 1600 Speed : 800 rpm Del.quantity cm3/: 270.0...274.0 1000 s: (267.0...277.0) : 7.00 Spread cm31000 s: (10.0) Aneroid pressure h: -Speed rpm : 500 Del.quantity cm3/: 149.0...151.0 1000 s: (146.0...154.0) cm3 : 7.00Spread 1000 s: (10.0) **BREAKAWAY** 1st version 1mm rack travel less than full load rack tr: 13.40 Speed rpm : 1090...1100 Speed

STARTING FUEL DELIVERY

rpm : 100 Speed Del.quantity cm3/: 240.0...260.0 1000 s: (236.0...264.0)

* Increase in control-rod travel with respect to setting at least 0.1 mm

Note remarks

: MB 14,7 k 2 : 05.07.91 Test sheet Edition : 3.6.91 Replaces Test oil : ISO-4113

: 0 402 648 845A Combination no.

Injection pump

Pump designation : PE8P120A320LS7816 : 0 412 628 829 EP type number

Governor

Governor design. : RQV300...1050PA797-5

: 0 421 813 702 Governer no.

Customer-spec. information

Customer : MERCEDES-BENZ

: 0M442 LA Engine

TEST BENCH REQUIREMENTS

Test oil

inlet temp. °C : 38...42

Overflow valve

: 1 417 413 025

Inlet press., bar: 1.50

Overflow

quantity min. 1/h: 100...120

Test nozzle holder

: 1 688 901 105 assembly

Openina

pressure, bar : 207...210

Orifice plate

diameter mm : 0,8

Test lines : 1 680 750 075

Outside diameter x Wall thickness

: 8.00x2.50x1000 x Length mm

(A) Injection pump setting values Insp. values in parentheses Set equal delivery quant.

per values ___

BEGINNING OF DELIVERY

Test pressure, bar: 25...27

Prestroke mm : 5.20...5.30 : (5.15...5.35) Rack travel in mm : 20.00...21.00 Firing order : 8-7-2-6-3-5-

: 0-45-90-135-180-225-Phasing

270-315

: 0.50 (0.75) Tolerance + - °

Time to cyl. no. : 8

BASIC SETTING

1st speed rpm: 600

Rack travel in mm : 13.10...13.30

Del.quantity cm3/: 22.9...23.2

100 s: (22.6...23.5)

cm3 : 0.4Spread

100 s: (0.7)

2nd speed rpm : 300.0

Rack travel in mm: 5.9...6.5 Del.quantity cm3/: 1.6...2.2

100 s: (1.3...2.5)

Spread cm3 : 0.5100 s: (0.8)

(B) Setting of injection pump with governor

GUIDE SLEEVE TRAVEL

rpm : 300 1st speed

1.20...1.40 travel mm

rpm : 800 2nd speed : 5.80...6.10 rpm : 1120 : 8.20...8.80 travel mm

3rd speed

travel mm

rpm : 1180 4th speed

: 9.60...10.40 travel mm

GUIDE SLEEVE POSITION Control-lever position

Degree: -1 rpm : 1100

Speed

Rack travel in mm : 15.20...17.80

FULL LOAD DELIV. AT FULL LOAD STOP

1st version

rpm : 600 Speed Aneroid pressure h: 800

Del.quantity : 229.0...232.0 1000 : (226.0...235.0) cm3 : 4.00 1000 : (7.00) Spread RATED SPEED 1st version Control lever position degrees: 117...125 Testina: 1st rack travel in: 12.90 rpm : 1090...1100 Speed 2nd rack travel in: 4.00 Speed rpm : 1155...1185 4th rack travel in: 1300 rpm : 0.00...1.00 Speed . LOW IDLE 1 Control lever position degrees: 82...90 Testing: Speed : 200 rpm Minimum rack trave: 8.00 : 300 Speed **CDM** Rack travel in mm : 5.90...6.50 CONSTANT REGULATION rpm : 300...500 Speed TORQUE CONTROL Dimension a mm : 1.30 : 1050 2nd speed rom Rack travel in m: 13.90...14.10 rpm : 800 3rd speed Rack travel in m: 14.50...14.80 Aneroid/Altitude Compensator Test 1st version Setting : 600 Speed rom hPa : 800 Pressure Rack travel mm : 13.10...13.30 Measurement Speed 1/min: 600 1st pressure hPa : 350 Rack travel in m: 11.30...11.50 Rack travel in m: 11.30...11.50

2nd pressure hPa : 550

Rack travel in m: 12.40...12.60

3rd pressure hPa : 950

Rack travel in m: 13.30...13.50

4th pressure hPa : 1200

Rack travel in m: 14.10...14.30

5th pressure hPa : -Rack travel in m: 10.20...10.50 START CUT-OUT 1/min: 220 (240) Speed FUEL DELIVERY CHARACTERISTICS 1st version Aneroid pressure h: 1600 : 1050 Speed rpm Del.quantity cm3/: 241.0...245.0 1000 s: (238.0...248.0) Spread cm3: 7.00 1000 s: (10.0) Aneroid pressure h: 1600 Speed rpm : 800 Del.quantity cm3/: 254.0...258.0 1000 s: (251.0...261.0) cm3 : 7.00 Spread 1000 s: (10.0) Aneroid pressure h: -Speed rpm : 500 Del.quantity cm3/ : 145.0...147.0 1000 s: (142.0...150.0) cm3 : 7.00 Spread 1000 s: (10.0) BREAKAWAY 1st version 1mm rack travel less than full load rack tr: 12.90 rpm : 1090...1100 Speed STARTING FUEL DELIVERY Speed rpm : 100 Del.quantity cm3/ : 240.0...260.0 1000 s: (236.0...264.0) Remarks: :

Note remarks

: MB 14,7 k 3 : 05.07.91 Test sheet Edition Replaces : 3.6.91 : ISO-4113 Test oil

: 0 402 648 845A Combination no.

Injection pump

Pump designation : PE8P120A320LS7816 : 0 412 628 829 EP type number

Governor

: RQV300...1050PA797-5 Governor design. : 0 421 813 702

Governer no.

Cust. part no. : 13

Customer-spec. information

: MERCEDES-BENZ Customer

: 0M442 LA Engine

TEST BENCH REQUIREMENTS

Test oil

inlet temp. °C : 38...42

Overflow valve

: 1 417 413 025

Inlet press., bar: 1.50

Overflow

quantity min. 1/h: 100...120

Test nozzle holder

: 1 688 901 019 assembly

Openina

: 207...210 pressure, bar

Orifice plate

diameter mm : 0,8

Test lines : 1 680 750 067

Outside diameter

x Wall thickness

: 6.00x1.50x1000 x Length mm

(A) Injection pump setting values Insp. values in parentheses Set equal delivery quant.

per values

BEGINNING OF DELIVERY

Test pressure, bar: 25...27

: 5.20...5.30 : (5.15...5.35) Prestroke mm

Rack travel in mm : 20.00...21.00 Firing order : 8-7-2-6-3-5-4-1

: 0-45-90-135-180-225-Phasing

270-315

: 0.50 (0.75) Tolerance + - °

Time to cyl. no. : 8

BASIC SETTING

1st speed rpm: 600

Rack travel in mm : 13.10...13.30

Del.quantity cm3/: 22.5...22.8

100 s: (22.2...23.1)

Spread cm3 : 0.4

100 s: (0.7)

2nd speed rpm : 300.0 Rack travel in mm : 5.9...6.5 Del.quantity cm3/ : 1.6...2.2

100 s: (1.3...2.5) cm3 : 0.5

Spread 100 s: (0.8)

(B) Setting of injection pump with governor

GUIDE SLEEVE TRAVEL

rpm : 300 1st speed

: 1.20...1.40 travel mm

2nd speed rpm : 800

travel mm : 5.80...6.10 rpm : 1120

3rd speed

: 8.20...8.80 travel mm

rpm : 1180 4th speed

: 9.60...10.40 travel mm

GUIDE SLEEVE POSITION

Control-lever position

Degree: -1

rpm : 1100

Rack travel in mm : 15.20...17.80

FULL LOAD DELIV. AT FULL LOAD STOP

1st version

Speed rpm : 600

Aneroid pressure h: 800 : 225.0...228.0 Del.quantity 1000 : (222.0...231.0) cm3 : 4.00Spread 1000 : (7.00)RATED SPEED 1st version Control lever position degrees: 117...125 Testing: 1st rack travel in: 12.90 rpm : 1090...1100 Speed 2nd rack travel in: 4.00 Speed rpm : 1155...1185 4th rack travel in: 1300 rom : 0.00...1.00Speed LOW IDLE 1 Control lever position degrees: 82...90 Testina: Speed rom Minimum rack trave: 8.00 : 300 Speed rpm Rack travel in mm : 5.90...6.50 CONSTANT REGULATION rpm : 300...500 Speed TORQUE CONTROL Dimension a mm : 1.30 2nd speed rpm : 1050 Rack travel in m: 13.90...14.10 3rd speed rpm : 800 Rack travel in m: 14.50...14.80 Aneroid/Altitude Compensator Test 1st version Setting rpm : 600 Speed Pressure hPa : 800 Rack travel mm : 13.10...13.30 Measurement 1/min: 600 Speed 1st pressure hPa : 350
Rack travel in m: 11.30...11.50
2nd pressure hPa : 550
Rack travel in m: 12.40...12.60
3rd pressure hPa : 950 Rack travel in m: 13.30...13.50

Rack travel in m: 14.10...14.30 5th pressure hPa : -Rack travel in m: 10.20...10.50 START CUT-OUT 1/min : 220 (240) Speed FUEL DELIVERY CHARACTERISTICS 1st version Aneroid pressure h: 1600 Speed rpm : 1050 Del.quantity cm3/ : 243.0...247.0 1000 s: (240.0...250.0) Spread cm3 : 7.001000 s: (10.0) Aneroid pressure h: 1600 Speed rpm : 800 Del.quantity cm3/: 261.0...265.0 1000 s: (258.0...268.0) cm3 : 7.00 Spread 1000 s: (10.0) Aneroid pressure h: -Speed rpm : 500
Del.quantity cm3/: 145.0...147.0
1000 s: (142.0...150.0)
Spread cm3 : 7.00 1000 s: (10.0) **BREAKAWAY** 1st version 1mm rack travel less than full load rack tr: 12.90 rpm : 1090...1100 Speed STARTING FUEL DELIVERY Speed rpm : 100 Del.quantity cm3/ : 240.0...260.0 1000 s: (236.0...264.0) Remarks:

4th pressure hPa : 1200

BOSCH INJ. PUMP TEST SPECIFICATIONS Note remarks Test sheet : FIA 17,2 e : 28.06.91 Edition : 8.6.90 Replaces : ISO-4113 Test oil Combination no. : 0 402 648 854 Injection pump Pump designation : PE8P130A920/5LS7822 EP type number : 0 412 638 802 Governor Governor design. : RQV300...950PA905 : 0 421 813 723 Governer no. Customer-spec. information : IVECO-FIAT Customer : 8280.42.001 Engine TEST BENCH REQUIREMENTS Test oil inlet temp. °C : 40...45 Overflow valve : 1 417 413 025 Inlet press., bar: 1.50 Tost nozzle holder : 1 688 901 105 assembly Opening . pressure, bar : 207...210 Orifice plate : 0,8

diameter mm

: 1 688 750 015 Test Lines

Outside diameter x Wall thickness

x Length mm : 6.00x1.50x600

(A) Injection pump setting values Insp. values in parentheses Set equal delivery quant. per values

BEGINNING OF DELIVERY Test pressure, bar: 25...27

: 5.10...5.20 Prestroke mm : (5.05...5.25) Rack travel in mm : 9.00...12.00

: 1- 8- 4- 3- 6- 5-7- 2 Firing order

: 0-45-90-135-180-225-Phasing 270-315

: 0.50 (0.75) Tolerance + - °

Time to cyl. no. : 1

BASIC SETTING

1st speed rpm: 550

Rack travel in mm : 11.40...11.50

Del.quantity cm3/: 22.8...23.1

100 s: (22.4...23.4)

Spread cm3 : 0.8

100 s: (1.2)

rpm : 300.02nd speed Rack travel in mm : 6.1...6.5 Del.quantity cm3/ : 2.0...2.6 100 s: (1.6...3.0)

cm3 : 0.6Spread 100 s: (1.0)

(B) Setting of injection pump with governor

GUIDE SLEEVE TRAVEL

rpm : 225 1st speed : 0.60...1.10 travel mm rpm : 350 2nd speed

: 2.10...2.50 travel mm 3rd speed rpm : 600

3.80...4.40 travel mm rpm : 950

4th speed : 7.20...7.40 travel mm

rpm : 1200 5th speed

: 11.00...12.00 travel mm

GUIDE SLEEVE POSITION Control-lever position

Degree: -1

Speed rpm : 1020 Rack travel in mm : 15.20...17.80

FULL LOAD DELIV. AT FULL LOAD STOP

1st version

Speed rpm : 550 Aneroid pressure h: 900

Del.quantity : 228.0...231.0 1000 : (224.5...234.5) Spread

cm3 : 8.00

1000 : (12.00)

RATED SPEED

1st version

Control lever

position degrees: 109...117

Testina:

1st rack travel in: 10.40 Speed rpm: 995...1005

2nd rack travel in: 4.00

4th rack travel in: 1200 Speed rmm

LOW IDLE 1

Control lever

position degrees: 63...71

Testina:

rpm Speed

Minimum rack trave: 7.70 rpm : 300 Speed

Rack travel in mm : 6.20...6.40

CONSTANT REGULATION

rpm : 380...480 Speed

Aneroid/Altitude Compensator Test

1st version

Setting

Speed : 500 rpm

hPa : 900 Pressure

Rack travel mm : 11.40...11.50

Measurement

1/min: 500 Speed

1st pressure hPa : -

Rack travel in m: 9.30...9.60

2nd pressure hPa : 440 Rack travel in m: 11.10...11.20

3rd pressure hPa : 400

Rack travel in m: 10.40...10.60

FUEL DELIVERY CHARACTERISTICS

1st version

Aneroid pressure h: 900

Speed rpm : 950 Del.quantity cm3/: 208.0...215.0 1000 s: (204.5...218.5)

Aneroid pressure h: .

Speed rpm : 500 Del.quantity cm3/: 168.0...171.0 1000 s: (164.5...174.5)

BREAKAWAY

1st version

1mm rack travel less than

full load rack tr: 10.40

rpm : 995...1005 Speed

STARTING FUEL DELIVERY

Speed rpm : 100 Del.quantity cm3/ : 210.0...240.0 1000 s: (206.0...244.0)

Remarks:

Check electrically unlatched starting

fuel delivery (EES) with 24 volt.

On activation of the starting solenoid, the start position must be reached.

Setting and blocking of pointer of

start-of-delivery sensor on cyl. 1 start of delivery

Note remarks

Test sheet : MB 11,8 s 2 : 21.06.91 Edition : 24.4.91 Replaces Test oil : ISO-4113

: 0 402 746 906 Combination no.

Injection pump

Pump designation : PES6P120A720LS7196

: 0 412 726 831 EP type number

Governor

Governor design. : RQV450...1050PA985

: 0 421 813 917 Governer no.

Customer-spec. information

: MERCEDES-BENZ Customer

: 0M447 h LA Engine

: 304.0 1st version kW : 2100 Rated speed

TEST BENCH REQUIREMENTS

Test oil

inlet temp. °C : 38...42

Overflow valve

: 1 417 413 D25

Inlet press., bar: 1.50

Overflow

quantity min. 1/h: 100...120

Test nozzle holder

: 1 688 901 019 assembly

Opening

: 207...210 pressure, bar

Orifice plate

diameter mm : 0,8

Test Lines : 1 680 750 067

Outside diameter

x Wall thickness

: 6.00X1.50X1000 x Length mm

(A) Injection pump setting values Insp. values in parentheses Set equal delivery quant.

per values ____

BEGINNING OF DELIVERY

Test pressure, bar: 25...27

Prestroke mm : 5.00...5.10

: (4.95...5.15)

Rack travel in mm : 19.00...21.00 Firing order : 6-2-4-1-5-3

: 0-60-120-180-240-300 Phasing

Tolerance + - ° : 0.50 (0.75)

Time to cyl. no. : 6

BASIC SETTING

1st speed rpm: 600

Rack travel in mm : 15.20...15.40

Del.quantity cm3/: 28.4...28.6

100 s: (28.1...28.9)

cm3 : 0.5Spread

100 s: (0.9)

2nd speed rpm : 450.0

Rack travel in mm : 4.0...4.6 Del.quantity cm3/: 1.0...1.6 100 s: (0.7...1.9)

cm3 : 0.8 Spread 100 s: (1.2)

(B) Setting of injection pump with governor

GUIDE SLEEVE TRAVEL

1st speed rpm : 450

: 1.10...1.60 travel mm

rpm : 6502nd speed

: 3.50...4.00 rpm : 940 travel mm

3rd speed

: 5.50...6.00 travel mm

: 1107 4th speed rpm

: 7.30...7.80 travel mm

5th speed : 1226 rpm

: 9.80...10.30 travel mm

GUIDE SLEEVE POSITION Control-lever position

Degree: -1

rpm : 1150 Speed

Rack travel in mm: 15.20...17.80

FULL LOAD DELIV. AT FULL LOAD STOP

Rack travel in m: 13.80...14.00 1st version 3rd pressure hPa : 1200 Speed rpm : 600 Rack travel in m: 16.60...16.80 Aneroid pressure h: 950 : 284.0...286.0 4th pressure hPa : -Del.quantity 1000 : (281.0...289.0) Rack travel in m: 9.80...10.20 : 5.00 cm3 Spread 1000 : (9.00) START CUT-OUT 1/min: 370 (390) RATED SPEED Speed FUEL DELIVERY CHARACTERISTICS 1st version Control Lever position degrees: 113...121 1st version Aneroid pressure h: 1600 Testing: rpm : 1050 1st rack travel in: 14.40 Del.quantity cm3/: 280.0...283.0 Speed rpm : 1090...1100 1000 s: (277.0...286.0) 2nd rack travel in: 4.00 Speed rpm : 1180...1210 4th rack travel in: 1300 cm3 : 8.00 Spread 1000 s: (12.0) Aneroid pressure h: 1600 rpm : 0.00...1.00Speed Speed rpm: 800 Del.quantity cm3/: 298.0...302.0 1000 s: (295.0...305.0) LOW IDLE 1 Control lever cm3 : 8.00 position degrees: 61...69 Spread 1000 s: (12.0) Aneroid pressure h: -Testing: rpm : 500 Speed Speed rom Del.quantity cm3/: 145.0...147.0 1000 s: (142.0...150.0) Minimum rack trave: 5.90 Speed rpm : 450 Rack travel in mm : 4.00...4.60 cm3 : 8.00 Spread 1000 s: (12.0) CONSTANT REGULATION rpm : 450...650 Speed **BREAKAWAY** TORQUE CONTROL Dimension a mm 1st version : 0.60 2nd speed rpm : 1050 1mm rack travel less than Rack travel in m: 15.40...15.60 full load rack tr: 14.40 3rd speed rpm : 900 Rack travel in m: 15.70...15.90 rpm : 1090...1100 Speed 4th speed rpm : 800 Rack travel in m: 16.00...16.20 STARTING FUEL DELIVERY Aneroid/Altitude Speed : 100 Compensator Test rpm Del.quantity cm3/: 280.0...300.0 1000 s: (276.0...304.0) 1st version Remarks: Settina : 600 Speed rom hPa : 950 Pressure Rack travel mm : 15.20...15.40 Measurement 1/min: 600 Speed 1st pressure hPa : 300 Rack travel in m: 11.90...12.10 2nd pressure hPa : 600

BOSCH INJ. PUMP TEST SPECIFICATIONS Note remarks : RVI 9,8 o Test sheet : 26.07.91 **Fdition** Replaces : ISO-4113 Test oil Combination no. : 0 402 746 908 Injection pump Pump designation : PES6P120A320RS7232 EP type number : 0 412 726 846 Governor Governor design. : RQV275...1000PA1001 : 0 421 813 931 Governer no. Customer-spec. information Customer : RVI Engine : MIDR 062045 E/3 : 249.0 1st version kW : 2000 Rated speed TEST BENCH REQUIREMENTS Test oil inlet temp. °C : 38...42 Overflow valve : 1 417 413 025 Inlet press., bar: 1.50 Test nozzle holder : 1 688 901 105 assembly Opening : 207...210 pressure, bar Orifice plate diameter mm : 0,8 : 1 680 750 015 Test lines Outside diameter x Wall thickness : 6.00x1.50x600 x Length mm (A) Injection pump setting values

Insp. values in parentheses Set equal delivery quant.

per values

BEGINNING OF DELIVERY

Test pressure, bar: 25...27

: 4.65...4.75 : (4.60...4.80) Prestroke mm Rack travel in mm : 18.00...21.00 Firing order : 1-5-3-6-2-4 Firing order : 0-60-120-180-240-300 Phasing Tolerance + - ° : 0.50 (0.75) BASIC SETTING 1st speed rpm: 600 Rack travel in mm: 13.60...13.70 Del.quantity cm3/: 26.1...26.3 100 s: (25.8...26.6) cm3 : 0.5Spread 100 s: (0.9) rpm : 275.0 2nd speed Rack travel in mm: 4.80...5.20 Del.quantity cm3/: 1.6...2.2 100 s: (1.3...2.5) cm3 : 0.8 Spread 100 s: (1.2) (B) Setting of injection pump with governor GUIDE SLEEVE TRAVEL rpm : 1070 1st speed : 8.20...8.40 travel mm : 275 2nd speed rpm : 1.10...1.50 travel mm 3rd speed : 500 rpm : 3.60...4.20 travel mm : 850 4th speed rpm travel mm : 6.40...6.80 5th speed rom : 1400 : 11.00...12.00 travel mm GUIDE SLEEVE POSITION Control-lever position Degree: -1 Speed rpm : 1060 Rack travel in mm : 15.20...17.80 FULL LOAD DELIV. AT FULL LOAD STOP 1st version rpm : 600 Speed Aneroid pressure h: 1000 Del.quantity : 201.0...266.0)

cm3 : 5.00 Spread

1000 : (9.00)

RATED SPEED

1st version Control lever

position degrees: 298...306

Testing:

1st rack travel in: 12.60

rpm : 1065...1075 Speed

2nd rack travel in: 4.00

rpm : 1195...1225 Speed

4th rack travel in: 1300

ppm : 0.00...1.00Speed

LOW IDLE 1 Control lever

position degrees: 243...251

: 275 rpm

Rack travel in mm : 4.90...5.00

CONSTANT REGULATION

rpm : 310...430 Speed

Aneroid/Altitude Compensator Test

1st version

Setting

: 500 Speed rpm hPa : 1000 Pressure

Rack travel mm : 13.60...13.70

Measurement

1/min: 500 Speed

1st pressure hPa : -

Rack travel in m: 8.90...9.10

2nd pressure hPa : 560

Rack travel in m: 12.90...13.00

3rd pressure hPa : 200

Rack travel in m: 10.00...10.20

START CUT-OUT

1/min: 225 (245) Speed

FUEL DELIVERY CHARACTERISTICS

1st version

Aneroid pressure h: 1000

Speed rpm : 1000 Del.quantity cm3/: 234.0...249.0 1000 s: (231.0...243.0)

Aneroid pressure h: .

Speed : 500 rpm

E20

Del.quantity cm3/: 113.0...115.0 1000 s: (110.0...118.0)

BREAKAWAY

1st version

1mm rack travel less than

full load rack tr: 12.60

rpm : 1065...1075 Speed

STARTING FUEL DELIVERY

Speed rpm : 100 Del.quantity cm3/ : 130.0...160.0 1000 s: (126.0...164.0)

LOW IDLE

Speed rpm : 275
Rack travel in mm : 4.80...5.20

Del.quantity cm3/: 16.0...22.0 1000 s: (13.0...25.0)

cm3 : 8.00 Spread

1000 s: (12.00)

Remarks:

Setting and blocking of pointer of start-of-delivery sensor on cyl. 1

start of delivery

Note remarks

: RVI 12,0 k Test sheet : 28.06.91 Edition

Replaces

Test oil : ISO-4113

: 0 402 746 909 Combination no.

Injection pump

: PES6P120A320RS7236 Pump designation

EP type number : 0 412 726 848

Governor

Governor design. : RQV275...1000PA1001-

: 0 421 813 936 Governer no.

Customer-spec. information Customer : RVT

Engine : MIDR 063540 J/3

: 306.0 1st version kW : 2000 Rated speed

TEST BENCH REQUIREMENTS

Test oil

inlet temp. °C : 38...42

Overflow valve

: 1 417 413 025

Inlet press., bar: 1.50

Test nozzle holder

: 1 688 901 105 assembly

Opening

: 207...210 pressure, bar

Orifice plate

diameter mm : 0,8

Test Lines : 1 680 750 015

Outside diameter

x Wall thickness

: 6.00X1.50X600 x Length mm

(A) Injection pump setting values Insp. values in parentheses Set equal delivery quant.

per values

BEGINNING OF DELIVERY

Test pressure, bar: 25...27

: 4.50...4.60 Prestroke mm : (4.45...4.65)

Rack travel in mm : 13.00...14.00 Firing order : 1-5-3-6-2-4

: 0-60-120-180-240-300 Phasina

Tolerance + - ° : 0.50 (0.75)

BASIC SETTING

1st speed rpm: 600

Rack travel in mm: 13.60...13.70

Del.quantity cm3/: 30.3...30.5

100 s: (30.0...30.8)

Spread cm3 : 0.5

100 s: (0.9)

rpm : 275.0 2nd speed

Rack travel in mm : 4.60...5.00 Del.quantity cm3/: 1.7...2.3 100 s: (1.4...2.6)

cm3 : 0.8Spread

100 s: (1.2)

(B) Setting of injection pump

with governor

GUIDE SLEEVE TRAVEL

1st speed rpm : 1070

: 8.30...8.50 travel mm

: 275 2nd speed rom

: 1.10...1.50 travel mm

: 500 3rd speed rom

: 3.60...4.20 travel mm

4th speed : 750 rpm

: 5.70...6.10 travel mm

: 1400 5th speed rpm

: 11.00...12.00 travel mm

GUIDE SLEEVE POSITION Control-lever position

Degree: -1

rpm : 1150

Rack travel in mm : 15.20...17.80

FULL LOAD DELIV. AT FULL LOAD STOP

1st version

Speed rpm : 600 Aneroid pressure h: 1000

: 303.0...305.0 Del.quantity

1000 : (300.0...308.0)

cm3 : 5.00Spread

1000 : (9.00)

RATED SPEED

1st version Control Lever

position degrees: 298...306

Testing:

1st rack travel in: 12.60

rpm : 1065...1075 Speed

2nd rack travel in: 4.00

rpm : 1195...1225 Speed

4th rack travel in: 1300

rpm : 0.00...1.00Speed

LOW IDLE 1 Control Lever

position degrees: 242...250

Testing:

Speed : 200 rpm

Minimum rack trave: 5.50 rpm

Rack travel in mm : 4.30...4.50

CONSTANT REGULATION

rpm : 310...430 Speed

Aneroid/Altitude Compensator Test

1st version

Setting : 500 Speed rom

Pressure hPa : 1000 Rack travel mm : 13.60...13.70

Measurement

1/min: 500 Speed

1st pressure hPa : -

Rack travel in m: 8.00...8.40

2nd pressure hPa : 680

Rack travel in m: 12.70...12.80

3rd pressure hPa : 240

Rack travel in m: 9.20...9.60

START CUT-OUT

1/min: 225 (245) Speed

FUEL DELIVERY CHARACTERISTICS

1st version

Aneroid pressure h: 1000 rpm : 1000

Del.quantity cm3/: 278.0...284.0 1000 s: (275.0...287.0)

Speed : 500 rpm

Del.quantity cm3/: 128.0...138.0 1000 s: (125.0...141.0)

Aneroid pressure h: -

Speed rpm: 500 Del.quantity cm3/: 132.0...134.0 1000 s: (129.0...137.0)

BREAKAWAY

1st version

1mm rack travel less than

full load rack tr: 12.60

rpm : 1065...1075 Speed

STARTING FUEL DELIVERY

rpm : 100 Speed

Del.quantity cm3/: 150.0...170.0

1008 s: (146.0...174.0)

LOW IDLE

rpm : 275 Speed

Rack travel in mm : 4.20...4.60 Del.quantity cm3/: 17.0...23.0 1000 s: (14.0...26.0)

Spread cm3 : 8.00

1000 s: (12.00)

Remarks:

Setting and blocking of pointer of start-of-delivery sensor on cyl. 1

start of delivery

BOSCH INJ. PUMP TEST SPECIFICATIONS : 4.80...4.90 Prestroke mm : (4.75...4.95)

Rack travel in mm : 12.50...13.50

Firing order : 6-2-4-1-5-3 Note remarks : MAN 11,9 t4 Test sheet : 05.07.91 Edition Replaces Test oil : ISO-4113 Phasing : 0-60-120-180-240-300 Tolerance + - ° : 0.50 (0.75) Combination no. : 0 402 746 910 Injection pump Time to cyl. no. : 6 Pump designation : PES6P120A720LS7209-1 EP type number : 0 412 726 849 BEGINNING OF DELIVERY DIFFERENCE Governor Governor design. : RQV300...1100PA1006K betw. rack trav. m: 4.40...4.60 & maximum rack tra: 12.5...13.5 : 0 421 815 283 Governer no. Difference ° CS : 1.75...3.25 Customer-spec. information BASIC SETTING Customer : MAN rom: 1100 Engine : D2866LXE 1st speed : 324.0 : 2200 Rack travel in mm : 13.00...13.10 1st version kW Rated speed Del.quantity cm3/: 25.2...25.4 TEST BENCH REQUIREMENTS 100 s: (24.9...25.7) Test oil cm3 : 0.5inlet temp. °C : 38...42 Spread 100 s: (0.9) Overflow valve : 1 417 413 025 rpm : 300.0 2nd speed Rack travel in mm: 4.8...5.2 Inlet press., bar: 1.50 Del.quantity cm3/: 2.0...2.6 100 s: (1.7...2.9) Test nozzle holder : 1 688 901 105 Spread cm3 : 0.8assembly 100 s: (1.2) Opening (B) Setting of injection pump pressure, bar : 207...210 with governor Orifice plate GUIDE SLEEVE TRAVEL diameter mm : 0,8 rpm : 1145 1st speed : 9.60...9.80 travel mm Test lines : 1 680 750 015 : 300 2nd speed rpm : 1.40...1.80 travel mm rpm : 500 Outside diameter 3rd speed : 3.20...3.80 travel mm x Wall thickness : 900 : 6.00X1.50X600 x Length mm 4th speed man : 7.00...7.40 travel mm : 1450 5th speed (A) Injection pump setting values rpm : 13.00...14.00 Insp. values in parentheses travel mm Set equal delivery quant. per values GUIDE SLEEVE POSITION Control-lever position

Degree: -1 rpm : 1200

Rack travel in mm : 15.20...17.80

BEGINNING OF DELIVERY

Test pressure, bar: 25...27

Measurement 1/min: 1100 FULL LOAD DELIV. AT FULL LOAD STOP Speed 1st pressure hPa : -1st version Rack travel in m: 9.00...9.20 Speed rpm : 1100 Aneroid pressure h: 1200 2nd pressure hPa : 100 Rack travel in m: 9.40...9.50 : 252.0...254.0 Del quantity 1000 : (249.0...257.0) 3rd pressure hPa : 560 : 5.00 Rack travel in m: 12.00...12.40 Spread cm3 1000 : (9.00) START CUT-OUT RATED SPEED Speed 1/min : 220 (240) 1st version FUEL DELIVERY CHARACTERISTICS Control lever position degrees: 114...122 Testina: 1st version 1st rack travel in: 12.00 Aneroid pressure h: 1200 Speed rpm : 900
Del.quantity cm3/: 222.0...228.0
1000 s: (219.0...231.0)
Aneroid pressure h: 1200 rpm : 1140...1150 Speed 2nd rack travel in: 4.00 rpm : 1245...1275 Speed 4th rack travel in: 1400 : 700 rom : 0.00...1.00Speed Speed rpm Del.quantity cm3/: 218.0...224.0 1000 s: (215.0...227.0) LOW IDLE 1 Aneroid pressure h: -Control lever : 500 position degrees: 67...75 Speed LDW Del.quantity cm3/: 166.0...168.0 1000 s: (163.0...171.0) Testing: Speed : 100 rpm Minimum rack trave: 6.50 BREAKAWAY Speed rom Rack travel in mm : 4.90...5.10 1st version 1mm rack travel less than CONSTANT REGULATION rpm : 290...420 Speed full load rack tr: 12.00 rpm : 1140...1150 TORQUE CONTROL Speed Dimension a mm :? Torque control curve - 1st version STARTING FUEL DELIVERY 1st speed rpm : 1100 Rack travel in m: 13.00...13.10 2nd speed rpm : 900 Speed rpm : 100 Del.quantity cm3/: 210.0...230.0 1000 s: (206.0...234.0) Rack travel in m: 11.70...11.90 3rd speed rpm : 700 Rack travel in m: 11.00...11.20 th speed rpm : 500 Rack travel in m: 11.00...11.40 LOW IDLE 4th speed Speed rpm : 300 Rack travel in mm : 4.80...5.20 Aneroid/Altitude Del.quantity cm3/: 20.0...26.0 1000 s: (17.0...29.0) Compensator Test cm3 : 8.00 Spread 1000 s: (12.00) 1st version Settina : 1100 Remarks: Speed rpm : MAN-NR. 3-7071 hPa : 1200 Pressure : 13.00...13.10 Rack travel mm Setting and blocking of pointer of

start-of-delivery sensor on cyl. 6 start of delivery

Note remarks

Test sheet : MAC 12.0 m : 18.06.91 Edition Replaces : 13.5.91 Test oil : ISO-4113

: 0 402 746 911 Combination no.

Injection pump

Pump designation : PES6P120A720RS7239 : 0 412 726 850 EP type number

Governor

: RQV325...900PA944-13 Governor design.

: 0 421 815 284 Governer no.

Customer-spec. information : MACK TRUCKS Customer

: E7-350 ITC Engine

1st version kW : 261.0 : 1800 Rated speed

TEST BENCH REQUIREMENTS

Test oil

inlet temp. °C : 38...42

Overflow valve

: 2 417 413 011

Overflow

quantity min. 1/h: 160...170

Test nozzle holder

: 1 688 901 101 assembly

Openina

: 207...210 pressure, bar

Orifice plate

diameter mm : 0,6

Test lines : 1 680 750 008

Outside diameter

x Wall thickness

: 6.00x2.00x600 x Length mm

(A) Injection pump setting values Insp. values in parentheses Set equal delivery quant.

per values ____

BEGINNING OF DELIVERY

Test pressure, bar: 22...24

: 3.25...3.35 Prestroke mm

: (3.20...3.40) Rack travel in mm : 9.00...12.00

: 1-5-3-6-2-4 Firing order

: 0-60-120-180-240-300 Phasing

Phasing

Tolerance + - ° : 0.50 (0.75)

Time to cyl. no. : 1

BASIC SETTING

1st speed rpm: 900

Rack travel in mm : 12.80...12.90

Del.quantity cm3/: 23.1...23.3

100 s: (22.8...23.6)

Spread cm3 : 0.5

100 s: (0.9)

2nd speed rpm : 325.0 Rack travel in mm : 5.0...5.2

Del.quantity cm3/: 4.6...5.2 100 s: (4.4...5.4)

cm3 : 0.8

Spread 100 s: (1.2)

(B) Setting of injection pump with governor

GUIDE SLEEVE TRAVEL

1st speed rpm :

1.20...1.40 travel mm

rpm : 450 2nd speed

: 2.80...3.20 travel mm

rpm : 650 3rd speed

: 5.60...5.80 rpm : 900 travel mm

4th speed

: 8.30...8.50 travel mm

rpm : 1100 5th speed

: 10.30...10.80 travel mm

FULL LOAD DELIV. AT FULL LOAD STOP

1st version

Speed rpm : 900 Aneroid pressure h: 1200

: 231.5...233.5 1000 : (228.5...236.5) Del.quantity

: 5.00 Spread cm3

: (9.00) 1000

RATED SPEED

1st version

Control lever

position degrees: 58...66

Testing:

1st rack travel in: 11.80 rpm : 940...990 Speed

2nd rack travel in: 4.00

Speed rpm : 1090...1100 4th rack travel in: 1200

rpm : 0.00...1.00 Speed

LOW IDLE 1

Control lever

position degrees: 8...16

Testing:

Speed : 275 rom Minimum rack trave: 6.20

Speed rpm : 325 Rack travel in mm : 5.00...5.20

CONSTANT REGULATION

rpm : 325...520 Speed

TORQUE CONTROL

Dimension a mm :?

Torque control curve - 1st version

1st speed rpm : 900 Rack travel in m: 12.80...12.90

rpm : 625 2nd speed

Rack travel in m: 12.70...13.00

3rd speed rpm : 550

Rack travel in m: 11.80...12.20

Aneroid/Altitude Compensator Test

1st version

Setting

pm : 625 hPa : 1200 beed rpm Pressure

Rack travel mm : 12.70...13.00

Measurement

1/min: 625 Speed

1st pressure hPa : -

Rack travel in m: 7.40...7.80 2nd pressure hPa : 365 Rack travel in m: 8.90...9.00

3rd pressure hPa : 665

Rack travel in m: 11.30...11.70

START CUT-OUT

1/min: 250 (255) Speed

FUEL DELIVERY CHARACTERISTICS

1st version

Aneroid pressure h: 1200

: 625 Speed rpm

Del.quantity cm3/: 266.5...272.5 1000 s: (263.5...275.5)

cm3 : 8.00 Spread 1000 s: (12.0)

: 875 Speed rpm

Del.quantity cm3/: 199.0...201.0 * 1000 s: (180.5...207.0)

Aneroid pressure h: -

Speed rpm : 400 Del.quantity cm3/ : 147.5...151.5

1000 s: (145.5...153.5)

BREAKAWAY

1st version

1mm rack travel less than

full load rack tr: 11.80 rpm : 940...998 Speed

STARTING FUEL DELIVERY

Speed rpm : 100 Del.quantity cm3/ : 210.0...240.0 1000 s: (205.0...245.0)

Rack travel in mm : 19.00...21.00

LOW IDLE

Speed rpm : 325 Rack travel in mm : 5.00...5.20 Del.quantity cm3/: 46.5...52.5 1000 s: (44.5...54.5)

cm3 : 8.00 Spread

1000 s: (12.00)

Remarks:

: MACK # 313GC5203-P8

Bow dimension:

Sliding-sleeve position = 37.0 mm Setting and blocking of pointer of start-of-delivery sensor on cyl. 1 start of delivery

* This test specification applies only to the engine/nozzle-and-holder assemblies on an injection-pump test bench: setting for test equipment, check value for engine equipment.

BOSCH INJ. PUMP TEST SPECIFICATIONS Note remarks : MAC 12.0 m1 : 18.06.91 Test sheet Edition : 13.5.91 Replaces : ISO-4113 Test oil Combination no. : 0 402 746 912 Injection pump Pump designation : PES6P120A720RS7239 : 0 412 726 850 EP type number Governor Governor design. : RQV325...875PA944-14 : 0 421 815 285 Governer no. Customer-spec. information Customer : MACK TRUCKS : EM7-300 ITC Engine 1st version kW : 224.0 : 1750 Rated speed TEST BENCH REQUIREMENTS Test oil inlet temp. °C : 38...42 Overflow valve : 2 417 413 011 Overflow quantity min. 1/h: 160...170 Test nozzle holder : 1 688 901 101 assembly Opening : 207...210 pressure, bar Orifice plate diameter mm : 0,6 : 1 680 750 008 Test lines Outside diameter x Wall thickness : 6.00X2.00X600 x Length mm

: 3.25...3.35 Prestroke mm : (3.20...3.40) Rack travel in mm : 11.00...13.00 Firing order : 1-5-3-6-2-4 Firing order Phasing : 0-60-120-180-240-300 Phasing Tolerance + - ° : 0.50 (0.75) Time to cyl. no. : 1 BASIC SETTING rpm: 875 1st speed Rack travel in mm : 11.20...11.30 Del.guantity cm3/: 21.6...21.8 100 s: (21.3...22.1) Spread cm3 : 0.5100 s: (0.9) rpm : 325.02nd speed Rack travel in mm: 4.4...4.6 Del.quantity cm3/: 4.6...5.2 100 s: (4.4...5.4) cm3 : 0.8Spread 100 s: (1.2) (B) Setting of injection pump with governor GUIDE SLEEVE TRAVEL rpm : 325 : 1.70...1.90 1st speed travel mm 2nd speed : 450 rpm : 4.20...4.60 travel mm 3rd speed : 650 rpm : 8.00...8.40 travel mm 4th speed 900 rpm : 10.00...10.20 travel mm 1000 5th speed rpm : 10.80...11.20 travel mm FULL LOAD DELIV. AT FULL LOAD STOP 1st version rpm : 875 Speed Aneroid pressure h: 1200 Del.quantity : 210.5...221.5) : 5.00 cm3 Spread 1000 : (9.00)

Test pressure, bar: 22...24

(A) Injection pump setting values

per values

BEGINNING OF DELIVERY

Insp. values in parentheses Set equal delivery quant. RATED SPEED

1st version Control lever

position degrees: 63...71

Testing:

1st rack travel in: 10.20 rpm : 915...965 Speed 2nd rack travel in: 4.00

rpm : 1015...1025 Speed

4th rack travel in: 1200

: 0.00...1.00 Speed rpm

LOW IDLE 1 Control lever

position degrees: 9...17

Testing:

Speed rpm Minimum rack trave: 6.00 Speed rpm : 325

Rack travel in mm : 4.40...4.60

CONSTANT REGULATION

rpm : 325...520 Speed

TORQUE CONTROL

Dimension a mm

Torque control curve - 1st version

1st speed rpm : 875

Rack travel in m: 11.20...11.30 2nd speed rpm : 510 Rack travel in m: 12.90...13.10 3rd speed rpm : 450 Rack travel in m: 11.80...12.40

Aneroid/Altitude Compensator Test

1st version

Setting

rpm : 510 hPa : 1200 Speed rpm. Pressure

Rack travel mm : 12.90...13.10

Measurement

1/min: 510 Speed

1st pressure hPa : -

Rack travel in m: 7.10...7.50

2nd pressure hPa : 370

Rack travel in m: 8.70...8.80

3rd pressure hPa : 730

Rack travel in m: 11.50...11.90

START CUT-OUT

1/min: 250 (255) Speed

FUEL DELIVERY CHARACTERISTICS

1st version

Aneroid pressure h: 1200

Speed rpm : 510
Del.quantity cm3/: 315.5...321.5
1000 s: (312.5...324.5)

cm3 : 8.00 Spread 1000 s: (12.0)

: 875 Speed rom

Del.quantity cm3/: 199.0...201.0 * 1000 s: (159.5...183.0)

Aneroid pressure h: -

rpm : 400 Speed

Del.quantity cm3/: 160.0...164.0

1000 s: (158.0...166.0)

BREAKAWAY.

1st version

1mm rack travel less than

full load rack tr: 10.20

rpm : 915...965 Speed

STARTING FUEL DELIVERY

Speed : 100 rpm

Del.quantity cm3/: 210.0...240.0 1000 s: (205.0...245.0)

Rack travel in mm : 19.00...21.00

LOW IDLE

Speed rpm : 325 Rack travel in mm : 4.40...4.60 Del.quantity cm3/: 46.0...52.0 1000 s: (44.0...54.0)

Spread

cm3 : 8.00 1000 s: (12.00)

Remarks:

: MACK # 313GC5203-P6

Bow dimension:

Sliding-sleeve position = 37.0 mm Setting and blocking of pointer of start-of-delivery sensor on cyl. 1

start of delivery

* This test specification applies only to the engine/nozzle-and-holder assemblies on an injection-pump test bench: setting for test equipment, check value for engine equipment.

Note remarks

Test sheet : MB 11,8 u Edition : 03.06.91

Replaces

Test oil : ISO-4113

: 0 402 746 913 Combination no.

Injection pump

Pump designation : PES6P120A720LS7237

: 0 412 726 851 EP type number

Governor

Governor design. : RQ300/1100PA1008-1

: 0 421 801 592 Governer no.

Customer-spec. information

: MERCEDES-BENZ Customer

: 0M447 hA Engine

: 184.0 1st version kW : 2200 Rated speed

TEST BENCH REQUIREMENTS

Test oil

inlet temp. °C : 38...42

Overflow valve

: 1 417 413 025

Inlet press., bar: 1.50

Overflow

quantity min. 1/h: 100...120

Test nozzle holder

: 1 688 901 105 assembly

Opening

: 207...210 pressure, bar

Orifice plate

diameter mm : 0,8

Test Lines : 1 680 750 075

Outside diameter

x Wall thickness

: 8.00x2.50x1000 x Length mm

(A) Injection pump setting values Insp. values in parentheses Set equal delivery quant.

per values

BEGINNING OF DELIVERY

Test pressure, bar: 25...27

Prestroke mm : 5.20...5.30

: (5.15...5.35)

Rack travel in mm : 20.00...21.00 : 6-2-4-1-5-3 Firing order

: 0-60-120-180-240-300 Phasing

Tolerance + - ° : 0.50 (0.75)

Time to cyl. no. : 6

BASIC SETTING

rpm: 600 1st speed

Rack travel in mm : 12.20...12.40

Del.quantity cm3/: 16.0...16.2

100 s: (15.7...16.5)

Spread cm3 : 0.5

100 s: (0.9)

rpm : 300.0 2nd speed

Rack travel in mm : 6.5...7.1 Del.quantity cm3/ : 1.6...2.2

100 s: (1.3...2.5)

cm3 : 0.8Spread

100 s: (1.2)

GUIDE SLEEVE POSITION

Control-lever position

Degree: -2

rpm : 600

Rack travel in mm : 19.20...20.80

FULL LOAD DELIV. AT FULL LOAD STOP

1st version

rpm : 600 Speed

Aneroid pressure h: 400

: 160.0...162.0 Del.quantity

1000 : (157.0...165.0)

Spread

cm3 : 5.00 1000 : (9.00)

RATED SPEED

1st version

Setting point:

: 600 rpm Rack travel in mm : 20.0

F04

Testing: 1st rack travel in: 13.00 Speed rpm : 1145...1160 2nd rack travel in: 4.00 Speed rpm : 1220...1250 4th rack travel in: 1300 rpm : 0.00...1.50Speed LOW IDLE 1 Setting point w/out bumper spring **Lbu** Rack travel in mm: 6.1 Testing: Speed rpm : 200 Minimum rack trave: 8.00 rpm : 300 Speed Rack travel in mm : 5.80...6.40 Rack travel in mm : 2.00 Speed : 370...410 rpm TORQUE CONTROL Dimension a mm :? Torque control curve - 1st version 1st speed rpm : 1100 Rack travel in m: 14.00...14.20 2nd speed rpm : 800 Rack travel in m: 14.30...14.50 Aneroid/Altitude Compensator Test 1st version Setting : 600 Speed man hPa : 400 Pressure : 12.20...12.40 Rack travel mm Measurement 1/min: 600 Speed 1st pressure hPa : 150
Rack travel in m: 11.30...11.50
2nd pressure hPa : 250
Rack travel in m: 11.90...12.10 3rd pressure hPa : 600 Rack travel in m: 12.40...12.60 4th pressure hPa : 1100 Rack travel in m: 13.70...13.90 5th pressure hPa : -Rack travel in m: 11.10...11.40 FUEL DELIVERY CHARACTERISTICS 1st version Aneroid pressure h: 1400

1st version 1mm rack travel less than

full load rack tr: 13.00

Speed rpm : 1145...1160

Remarks:

F05

Speed

rom

Note remarks

: RVI 9,8 o 1 Test sheet Edition : 26.07.91

Replaces

Test oil : ISO-4113

Combination no. : 0 402 746 915

Injection pump

Pump designation : PES6P120A320RS7232

: 0 412 726 846 EP type number

Governor

Governor design. : RQ275/1050PA999-2

: 0 421 801 594 Governer no.

Customer-spec. information

Customer

: MIDR 06-20-45 Engine

1st version kW : 249.0

: 2100 Rated speed

TEST BENCH REQUIREMENTS

Test oil

inlet temp. °C : 38...42

Overflow valve

: 1 417 413 025

Inlet press., bar: 1.50

Test nozzle holder

: 1 688 901 105 assembly

Openina

: 207...210 pressure, bar

Orifice plate

: 0,8 diameter mm

: 1 680 750 015 Test lines

Outside diameter

x Wall thickness

: 6.00x1.50x600 x Length mm

(A) Injection pump setting values Insp. values in parentheses

Set equal delivery quant.

per values

BEGINNING OF DELIVERY

Test pressure, bar: 25...27

Prestroke mm : 4.65...4.75

: (4.60...4.80)

Rack travel in mm : 18.00...21.00 Firing order : 1-5-3-6-2-4 Firing order

: 0-60-120-180-240-300 Phasina

Tolerance + - ° : 0.50 (0.75)

BASIC SETTING

1st speed rom: 600

Rack travel in mm : 13.10...13.20

Del.quantity cm3/: 23.5...23.7

100 s: (23.2...24.0)

Spread

cm3 : 0.5

100 s: (0.9)

2nd speed rpm : 275.0 Rack travel in mm : 4.60...5.00 Del.quantity cm3/ : 1.5...2.1 100 s: (1.2...2.4)

cm3 : 0.8

Spread 100 s: (1.2)

GUIDE SLEEVE POSITION

Control-Lever position Degree: -2

rpm : 600

Rack travel in mm : 19.20...20.80

FULL LOAD DELIV. AT FULL LOAD STOP

1st version

rpm : 600 Speed

Aneroid pressure h: 1000

: 235.0...237.0 Del.quantity 1000 : (232.0...240.0)

: 5.00 cm3 Spread

1000 : (9.00)

RATED SPEED

1st version

Setting point:

Speed rpm

Rack travel in mm: 20.0

Testing:

1st rack travel in: 12.10

rpm : 1025...1040 Speed

2nd rack travel in: 4.00

Speed rpm : 1235...1265 4th rack travel in: 1350

rpm : 0.00...1.00Speed

LOW IDLE 1

Setting point w/out bumper spring

rpm : 275 Rack travel in mm: 8.3

Testing:

Speed rpm : 200 Minimum rack trave: 6.00 rpm : 275 Speed

Rack travel in mm: 4.70...4.90
Rack travel in mm: 2.00
Speed rpm: 350...390

TORQUE CONTROL

Dimension a mm :?

Torque control curve - 1st version

1st speed rpm : 600

Rack travel in m: 13.50...13.60 2nd speed rpm : 1050 Rack travel in m: 13.40...13.60

Aneroid/Altitude Compensator Test

1st version

Setting

: 500 Speed rom hPa : 1000 Pressure

Rack travel mm : 13.10...13.20

Measurement

1/min: 500 Speed

1st pressure hPa : -

Rack travel in m: 8.60...9.00

2nd pressure hPa : 560 Rack travet in m: 12.50...12.60 3rd pressure hPa : 200

Rack travel in m: 9.60...10.00

START CUT-OUT

1/min: 225 (245) Speed

FUEL DELIVERY CHARACTERISTICS

1st version

Aneroid pressure h: 1000

Speed rpm : 1050 Del.quantity cm3/: 207.0...213.0 1000 s: (204.0...216.0)

Aneroid pressure h: -

: 500 Speed rpm

Del.quantity cm3/: 92.0...94.0 1000 s: (8°97.0)

BREAKAWAY

1st version

1mm rack travel less than

full load rack tr: 12.10

rpm : 1025...1040 Speed

STARTING FUEL DELIVERY

rpm : 100 Speed

Del.quantity cm3/: 130.0...160.0 1000 s: (126.0...164.0)

LOW IDLE

Speed rpm : 275
Rack travel in mm : 4.60...5.00

Del.quantity cm3/: 15.0...21.0 1000 s: (12.0...24.0) Spread cm3 : 8.00

1000 s: (12.00)

Remarks:

Setting and blocking of pointer of start-of-delivery sensor on cyl. 1

start of delivery

Note remarks

: MB 11,8 u 1 Test sheet Edition : 26.07.91

Replaces

Test oil : ISO-4113

: 0 402 746 916 Combination no.

Injection pump

Pump designation : PES6P120A720LS7237

EP type number : 0 412 726 851

Governor

: RQ300/1100PA1010 Governor design. : 0 421 801 596 Governer no.

Customer-spec. information

: MERCEDES-BENZ Customer

Engine : 0M447 hA

: 184.0 1st version kW : 2200 Rated speed

TEST BENCH REQUIREMENTS

Test oil

inlet temp. °C : 38...42

Overflow valve

: 1 417 413 025

Inlet press., bar: 1.50

Overflow

quantity min. 1/h: 100...120

Test nozzle holder

assembly : 1 688 901 105

Opening

pressure, bar : 207...210

Orifice plate

diameter mm : 0.8

Test lines : 1 680 750 075

Outside diameter

x Wall thickness

: 8.00x2.50x1000 x Length mm

(A) Injection pump setting values Insp. values in parentheses Set equal delivery quant.

per values

BEGINNING OF DELIVERY

Test pressure, bar: 25...27

Prestroke mm : 5.20...5.30

: (5.15...5.35) Rack travel in mm : 20.00...21.00

: 6-2-4-1-5-3 Firing order

: 0-60-120-180-240-300 Phasing

Tolerance $+ - ^{\circ} : 0.50 (0.75)$

Time to cyl. no.: 6

BASIC SETTING

1st speed rpm: 600

Rack travel in mm : 12.20...12.40

Del.quantity cm3/: 16.0...16.2

100 s: (15.7...16.5)

cm3 : 0.5 Spread

100 s: (0.9)

2nd speed rpm : 300.0Rack travel in mm: 5.8...6.4

Del.quantity cm3/: 1.6...2.2

100 s: (1.3...2.5)

cm3 : 0.8Spread

100 s: (1.2)

GUIDE SLEEVE POSITION Control-lever position

Degree: -2

rpm : 600 Speed

Rack travel in mm : 19.20...20.80

FULL LOAD DELIV. AT FULL LOAD STOP

1st version

rpm : 600 Speed Aneroid pressure h: 400

: 160.0...162.0 Del.quantity

1000 : (157.0...165.0) cm3 : 5.00

Spread

1000 : (9.00)

RATED SPEED

1st version

Setting point:

speed rpm : 600 Rack travel in mm : 20.0

Testina: 1st rack travel in: 13.00 rpm : 1145...1160 Speed 2nd rack travel in: 4.00 rpm : 1220...1250 Speed 4th rack travel in: 1300 Speed rpm : 0.00...1.50LOW IDLE 1 Setting point w/out bumper spring : 300 Speed rom Rack travel in mm: 6.1 Testing: : 200 Speed rom Minimum rack trave: 8.00 : 300 rpm Rack travel in mm : 5.80...6.40 Rack travel in mm : 2.00 : 390...430 Speed mom TORQUE CONTROL Dimension a mm 2nd speed rpm : 1100 Rack travel in m: 14.00...14.20 Aneroid/Altitude Compensator Test 1st version Settina : 600 Speed rpm Pressure hPa : 400 Rack travel mm : 12.20...12.40 Measurement 1/min: 600 Speed 1st pressure hPa : 150 Rack travel in m: 11.30...11.50 2nd pressure hPa : 250 Rack travel in m: 11.90...12.10 3rd pressure hPa : 600 Rack travel in m: 12.40...12.60 4th pressure hPa : 1100 Rack travel in m: 13.70...13.90 5th pressure hPa : -Rack trayel in m: 11.10...11.40 START CUT-OUT 1/min : 220 (240) Speed FUEL DELIVERY CHARACTERISTICS 1st version Aneroid pressure h: 1400

rpm : 1100 Speed Del.quantity cm3/: 210.0...213.0 1000 s: (207.0...216.0) cm3 : 8.00 Spread 1000 s: (12.0) Aneroid pressure h: 1400 Speed rpm : 800 Del.quantity cm3/: 222.0...226.0 1000 s: (219.0...229.0) cm3 : 8.00 Spread 1000 s: (12.0) Aneroid pressure h: -Speed rpm : 500 Del.quantity cm3/ : 128.0...130.0 1000 s: (125.0...133.0) cm3 : 8.00 Spread 1000 s: (12.0)

BREAKAWAY

1st version 1mm rack travel less than

full load rack tr: 13.00 rpm : 1145...1160 Speed

STARTING FUEL DELIVERY

Speed : 100 rom Del.quantity cm3/: 210.0...230.0 1000 s: (206.0...234.0)

Remarks:

F09

Note remarks

Test sheet : MB 11,8 t 1 : 26.07.91 Edition

Replaces

Test oil : ISO-4113

Combination no. : 0 402 746 917

Injection pump

Pump designation : PES6P120A720LS7238

EP type number : 0 412 726 852

Governor

Governor design. : RQ300/1100PA1010-1

: 0 421 801 597 Governer no.

Customer-spec. information

Customer : MERCEDES-BENZ

: 0M447 hLA Engine

1st version kW : 220.0 : 2200 Rated speed

TEST BENCH REQUIREMENTS

Test oil

: 38...42 inlet temp. °C

Overflow valve

: 1 417 413 025

Inlet press., bar: 1.50

Overflow

quantity min. 1/h: 100...120

Test nozzle holder

: 1 688 901 105 assembly

Opening

: 207...210 pressure, bar

Orifice plate

diameter mm : 0,8

Test lines : 1 680 750 075

Outside diameter

x Wall thickness

x Length mm : 8.00x2.50x1000

(A) Injection pump setting values Insp. values in parentheses Set equal delivery quant.

per values

BEGINNING OF DELIVERY

Test pressure, bar: 25...27

: 5.50...5.60 Prestroke mm

: (5.45...5.65)

Rack travel in mm : 20.00...21.00 Firing order : 6-2-4-1-5-3

: 0-60-120-180-240-300 Phasing

Tolerance + - ° : 0.50 (0.75)

Time to cyl. no. : 6

BASIC SETTING

1st speed rpm: 600

Rack travel in mm : 14.00...14.20

Del.guantity cm3/: 21.3...21.5

100 s: (21.0...21.8)

Spread cm3 : 0.5

100 s: (0.9)

rpm : 300.0 2nd speed

Rack travel in mm : 6.0...6.5 Del.quantity cm3/ : 1.6...2.2

100 s: (1.3...2.5)

cm3 : 0.8Spread

100 s: (1.2)

GUIDE SLEEVE POSITION

Control-lever position

Degree: -2

rpm : 600 Speed

Rack travel in mm : 19.20...20.80

FULL LOAD DELIV. AT FULL LOAD STOP

1st version

Speed rpm : 600

Aneroid pressure h: 600 Del.quantity : 213.0...218.0)

cm3 : 5.00

1000 : (9.00)

RATED SPEED

Spread

1st version

Setting point:

rpm : 600 Speed Rack travel in mm: 20.0

Testing: 1st rack travel in: 13.60 rpm : 1145...1160 Speed 2nd rack travel in: 4.00 rpm : 1220...1250 Speed 4th rack travel in: 1300 rpm : 0.00...1.50Speed LOW IDLE 1 Setting point w/out bumper spring rpm Rack travel in mm: 6.3 Testing: Speed : 200 rpm Minimum rack trave: 8.20 rpm : 300 Speed Rack travel in mm : 6.00...6.60 Rack travel in mm : 2.00 Speed rom : 370...410 TORQUE CONTROL Dimension a mm :? Torque control curve - 1st version 1st speed rpm : 1100 Rack travel in m: 14.60...14.80 2nd speed rpm : 700 Rack travel in m: 14.80...15.00 Aneroid/Altitude Compensator Test 1st version Setting : 600 Speed rpm hPa : 600 Pressure : 14.00...14.20 Rack travel mm Measurement 1/min: 600 Speed 1st pressure hPa : 250 Rack travel in m: 12.20...12.40 2nd pressure hPa : 400 Rack travel in m: 13.60...13.80 3rd pressure hPa : 800 Rack travel in m: 14.20...14.40 4th pressure hPa : -Rack travel in m: 11.70...12.00 START CUT-OUT 1/min : 220 (240) Speed FUEL DELIVERY CHARACTERISTICS 1st version

Aneroid pressure h: 1400 Speed rpm : 1100 Del.quantity cm3/ : 229.0...232.0 1000 s: (226.0...235.0) cm3 : 8.00Spread 1000 s: (12.0) Aneroid pressure h: 1400 Speed rpm Del.quantity cm3/: 238.0...242.0 1000 s: (235.0...245.0) cm3 : 8.00 Spread 1000 s: (12.0) Aneroid pressure h: rpm : 500 Speed Del.quantity cm3/: 154.0...156.0 1000 s: (151.0...159.0) BREAKAWAY

1st version 1mm rack travel less than

full load rack tr: 13.60 rpm : 1145...1160 Speed

STARTING FUEL DELIVERY

: 100 Speed rpm Del.quantity cm3/ : 220.0...240.0

1000 s: (216.0...244.0)

Remarks:

F11

Note remarks

Test sheet : MB 11,8 t 2 : 26.07.91 Edition

Replaces

: ISO-4113 Test oil

: 0 402 746 918 Combination no.

Injection pump

Pump designation : PES6P120A720LS7238

: 0 412 726 852 EP type number

Governor

Governor design. : RQ300/1100PA1013 Governer no. : 0 421 801 599

Customer-spec. information

: MERCEDES-BENZ Customer

: 0M447 hLA Engine

: 220.0 1st version kW : 2200 Rated speed

TEST BENCH REQUIREMENTS

Test oil

inlet temp. °C : 38...42

Overflow valve

: 1 417 413 025

Inlet press., bar: 1.50

Overflow

quantity min. 1/h: 100...120

Test nozzle holder

: 1 688 901 105 assembly

Opening

: 207...210 pressure, bar

Orifice plate

diameter mm : 0,8

Test Lines : 1 680 750 075

Outside diameter

x Wall thickness

: 8.00x2.50x1000 x Length mm

(A) Injection pump setting values Insp. values in parentheses Set equal delivery quant.

per values ____

BEGINNING OF DELIVERY

Test pressure, bar: 25...27

: 5.50...5.60 Prestroke mm

: (5.45...5.65)

Rack travel in mm : 20.00...21.00 : 6-2-4-1-5-3 Firing order

: 0-60-120-180-240-300 Phasing

: 0.50 (0.75) Tolerance + - °

Time to cyl. no. : 6

BASIC SETTING

1st speed rpm: 600

Rack travel in mm : 14.00...14.20

Del.quantity cm3/: 21.3...21.5

100 s: (21.0...21.8)

Spread cm3 : 0.5

100 s: (0.9)

rpm : 300.0 2nd speed Rack travel in mm: 6.2...6.8

Del.quantity cm3/: 1.6...2.2 100 s: (1.3...2.5)

cm3 : 0.8 Spread 100 s: (1.2)

GUIDE SLEEVE POSITION Control-lever position

Degree: -2

rpm : 600 Speed

Rack travel in mm : 19.20...20.80

FULL LOAD DELIV. AT FULL LOAD STOP

1st version

rpm : 600 Speed Aneroid pressure h: 600

: 213.0...215.0 Del.quantity

1000 : (210.0...218.0)

: 5.00 cm3 Spread

1000 : (9.00)

RATED SPEED

1st version

Setting point:

Speed rpm : 600 Rack travel in mm : 20.0

1st rack travel in: 13.60 rpm : 1145...1160 Speed 2nd rack travel in: 4.00 rpm : 1220...1250 Speed 4th rack travel in: 1300 rpm : 0.00...1.50Speed LOW IDLE 1 Setting point w/out bumper spring rpm : 300 Rack travel in mm: 6.5 Testing: Speed : 200 rom Minimum rack trave: 8.40 : 300 Speed ripm Rack travel in mm : 6.20...6.80 Rack travel in mm : 2.00 : 370...410 Speed rpm TORQUE CONTROL Dimension a mm : ? Torque control curve - 1st version : 1100 1st speed morn Rack travel in m: 14.60...14.80 rpm : 700 2nd speed Rack travel in m: 14.80...15.00 Aneroid/Altitude Compensator Test 1st version Setting : 600 Speed mon hPa : 600 Pressure : 14.00...14.20 Rack travel mm Measurement 1/min: 600 Speed 1st pressure hPa : 250 Rack travel in m: 12.20...12.40 2nd pressure hPa : 400 Rack travel in m: 13.60...13.80 3rd pressure hPa : 800 Rack travel in m: 14-20...14.40 4th pressure hPa : 890 Rack travel in m: 14.50...14.70 5th pressure hPa : Rack travel in m: 11.70...12.00 START CUT-OUT Speed 1/min: 220 (240) FUEL DELIVERY CHARACTERISTICS

Testing:

1st version Aneroid pressure h: 1400 Speed rpm : 1100 Del.quantity cm3/: 229.0...232.0 1000 s: (226.0...235.0) cm3 : 8.00 Spread 1000 s: (12.0) Aneroid pressure h: 1400 : 700 Speed rom Del.quantity cm3/: 238.0...242.0 1000 s: (235.0...245.0) cm3 : 8.00 Spread 1000 s: (12.0) Aneroid pressure h: rpm : 500 Speed Del.quantity cm3/: 148.0...150.0 1000 s: (145.0...153.0) cm3 Spread 1000 s: (12.0)

BREAKAWAY

1st version 1mm rack travel less than

full load rack tr: 13.60 rpm : 1145...1160 Speed

STARTING FUEL DELIVERY

Speed : 100 rpm Del.quantity cm3/: 220.0...240.0 1000 s: (216.0...244.0)

Remarks:

Note remarks

: MB 11,8 u 2 : 26.07.91 Test sheet Edition

Replaces

: ISO-4113 Test oil

: 0 402 746 919 Combination no.

Injection pump

Pump designation : PES6P120A720LS7237

: 0 412 726 851 EP type number

Governor

Governor design. : RQ300/1100PA1013-1

: 0 421 801 603 Governer no.

Customer-spec. information

: MERCEDES-BENZ Customer

: 0M447 hA Engine

1st version kW : 184.0 : 2200 Rated speed

TEST BENCH REQUIREMENTS

Test oil

inlet temp. °C : 38...42

Overflow valve

: 1 417 413 025

Inlet press., bar: 1.50

Overflow

quantity min. 1/h: 100...120

Test nozzle holder

: 1 688 901 105 assembly

Opening |

: 207...210 pressure, bar

Orifice plate

diameter mm : 0,8

Test lines : 1 680 750 075

Outside diameter x Wall thickness

x Length mm : 8.00x2.50x1000

(A) Injection pump setting values Insp. values in parentheses Set equal delivery quant.

per values ___

BEGINNING OF DELIVERY

Test pressure, bar: 25...27

: 5.20...5.30 Prestroke mm

: (5.15...5.35)

Rack travel in mm: 20.00...21.00

Firing order: 6-2-4-1-5-3

: 0-60-120-180-240-300 Phasing

: 0.50 (0.75) Tolerance + - °

Time to cyl. no. : 6

BASIC SETTING

1st speed rom : 600

Rack travel in mm : 12.00...12.20

Del.quantity cm3/: 16.3...16.5

100 s: (16.0...16.8)

Spread cm3 : 0.5

100 s: (0.9)

rpm : 300.0 2nd speed Rack travel in mm: 5.8...6.4

Del.quantity cm3/: 1.6...2.2

100 s: (1.3...2.5) cm3 : 0.8Spread

100 s: (1.2)

GUIDE SLEEVE POSITION Control-lever position

Degree: -2

rpm : 600 Speed

Rack travel in mm : 19.20...20.80

FULL LOAD DELIV. AT FULL LOAD STOP

1st version

rpm : 600 Speed Aneroid pressure h: 500

Del.quantity : 103.0...168.0)

cm3 : 5.00 Spread

1000 : (9.00)

RATED SPEED

1st version

Setting point:

Speed rpm

Rack travel in mm: 20.0

F14

Testing: 1st rack travel in: 12.30 Speed rpm : 1145...1160 2nd rack travel in: 4.00 Speed rpm : 1220...1250 4th rack travel in: 1300 rpm : 0.00...1.50 Speed LOW IDLE 1 Setting point w/out bumper spring rpm : 300 Speed Rack travel in mm : 6.1 Testina: rpm : 200 Speed Minimum rack trave: 8.00 rpm : 300 Speed Rack travel in mm : 5.80...6.40 Rack travel in mm : 2.00 : 370...410 Speed rom Aneroid/Altitude Compensator Test 1st version Settina : 600 Speed rpm hPa : 500 Pressure : 12.00...12.20 Rack travel mm Measurement 1/min: 600 Speed 1st pressure hPa : 300 Rack travel in m: 11.60...11.80 2nd pressure hPa : 600 Rack travel in m: 12.20...12.40 3rd pressure hPa : 1100 Rack travel in m: 12.80...13.00 4th pressure hPa : -Rack travel in m: 11.70...12.00 START CUT-OUT 1/min: 220 (240) Speed FUEL DELIVERY CHARACTERISTICS 1st version Aneroid pressure h: 1400 Speed rpm : 1100 Del.quantity cm3/ : 199.0...201.0 1000 s: (196.0...203.0)

cm3 : 8.00

rpm : 500

1000 s: (12.0)

Del.quantity cm3/: 139.0...141.0 1000 s: (136.0...144.0) cm3 : 8.00Spread 1000 s: (12.0) **BREAKAWAY** 1st version 1mm rack travel less than full load rack tr: 12.30 Speed rpm : 1145...1160 Speed STARTING FUEL DELIVERY Speed rpm : 100 Del.quantity cm3/: 200.0...220.0 1000 s: (196.0...224.0) Remarks:

Spread

Speed

Aneroid pressure h: -

Note remarks

: MB 11,8 t 3 : 26.07.91 Test sheet Edition

Replaces

: ISO-4113 Test oil

: 0 402 746 922 Combination no.

Injection pump

Pump designation : PES6P120A720LS7238

EP type number : 0 412 726 852

Governor

Governor design. : RQ300/1100PA1008

Governer no. : 0 421 801 591

Customer-spec. information

: MERCEDES-BENZ Customer

: 0M447 hLA Engine

: 220.0 : 2200 1st version kW Rated speed

TEST BENCH REQUIREMENTS

Test oil

inlet temp. °C : 38...42

Overflow valve

: 1 417 413 025

Inlet press., bar: 1.50

Overflow

quantity min. 1/h: 100...120

Test nozzle holder

: 1 688 901 105 assembly

Opening .

: 207...210 pressure, bar

Orifice plate

: 0,8 diameter mm

Test lines : 1 680 750 075

Outside diameter

x Wall thickness

x Length mm : 8.00X2.50X1000

(A) Injection pump setting values Insp. values in parentheses Set equal delivery quant.

per values ____

BEGINNING OF DELIVERY

Test pressure, bar: 25...27

: 5.50...5.60 Prestroke mm

: (5.45...5.65)

Rack travel in mm : 20.00...21.00 Firing order : 6-2-4-1-5-3

Firing order

Phasing : 0-60-120-180-240-300

Tolerance + - ° : 0.50 (0.75)

Time to cyl. no. : 6

BASIC SETTING

1st speed rpm: 600

Rack travel in mm : 14.00...14.20

Del.quantity cm3/: 21.3...21.5

100 s: (21.0...21.8)

cm3 : 0.5Spread

100 s: (0.9)

rpm : 300.0 2nd speed

Rack travel in mm: 6.2...6.8 Del.quantity cm3/: 1.6...2.2

100 s: (1.3...2.5)

cm3 : 0.8 Spread

100 s: (1.2)

GUIDE SLEEVE POSITION

Control-lever position

Degree: -2

rpm : 600

Rack travel in mm : 19.20...20.80

FULL LOAD DELIV. AT FULL LOAD STOP

1st version

Speed rpm : 600 Aneroid pressure h: 600

Del.quantity : 213.0...215.0

1000 : (210.0...218.0)

: 5.00 Spread cm3

1000 : (9.00)

RATED SPEED

1st version

Setting point:

: 600 Speed rpm Rack travel in mm: 20.0

Testing: 1st rack travel in: 13.60 rpm : 1145...1160 Speed 2nd rack travel in: 4.00 rpm : 1220...1250 Speed 4th rack travel in: 1300 Speed rpm : 0.00...1.50LOW IDLE 1 Setting point w/out bumper spring Speed rpm Rack travel in mm: 6.5 Testing: Speed : 200 rpm Minimum rack trave: 8.40 rpm : 300 Speed Rack travel in mm: 6.20...6.80 Rack travel in mm: 2.00 Speed rpm: 370...410 Aneroid/Altitude Compensator Test 1st version Setting Speed : 600 rpm Pressure hPa : 600 Rack travel mm : 14.00...14.20 Measurement 1/min: 600 Speed 1st pressure hPa : 250 Rack travel in m: 12.20...12.40 2nd pressure hPa : 400 Rack travel in m: 13.60...13.80 3rd pressure hPa : 800 Rack travel in m: 14.20...14.40 4th pressure hPa : 890 Rack travel in m: 14.50...14.70 5th pressure hPa : -Rack travel in m: 11.50...11.80 START CUT-OUT Speed 1/min : 220 (240) FUEL DELIVERY CHARACTERISTICS 1st version Aneroid pressure h: 1400 Speed rpm : 1100 Del.quantity cm3/: 229.0...232.0 1000 s: (226.0...235.0)

cm3 : 8.00 1000 s: (12.0) BREAKAWAY

1st version 1mm rack travel less than

full load rack tr: 13.60 Speed rpm : 1145...1160

STARTING FUEL DELIVERY

Speed rpm : 100 Del.quantity cm3/ : 220.0...240.0 1000 s: (216.0...244.0)

:

Remarks:

Spread

Note remarks

Test sheet : MB 11,7 c 3
Edition : 27.05.91
Replaces : 22.3.91
Test oil : ISO-4113

Combination no. : 0 402 776 806

Injection pump

Pump designation : PES6P120A720LS7120

EP type number : 0 412 726 803

Governor

Governor design. : RSV350...1050P0A529

-3

Governer no. : 0 421 833 317

Customer-spec. information

Customer : MERCEDES-BENZ

Engine : 0M447 A

1st version kW : 213.0 Rated speed : 2100

TEST BENCH REQUIREMENTS

Test oil

inlet temp. °C : 38...42

Overflow valve

: 1 417 413 025

Inlet press., bar: 1.50

Overflow

quantity min. 1/h: 100...120

Test nozzle holder

assembly : 1 688 901 105

Opening

pressure, bar : 207...210

Orifice plate

diameter mm : 0,8

Test lines : 1 680 750 075

Outside diameter x Wall thickness

x Length mm : 8.00X2.50X1000

(A) Injection pump setting values Insp. values in parentheses Set equal delivery quant.

per values ___

BEGINNING OF DELIVERY

Test pressure, bar: 25...27

Prestroke mm : 5.20...5.30

: (5.15...5.35) Rack travel in mm : 9.00...12.00

Firing order : 6-2-4-1-5-3

Phasing : 0-60-120-180-240-300

Tolerance $+ - ^{\circ} : 0.50 (0.75)$

Time to cyl. no. : 6

BASIC SETTING

1st speed rpm: 650

Rack travel in mm : 14.00...14.20

Del.guantity cm3/: 20.1...20.3

100 s: (19.8...20.6)

Spread cm3 : 0.5

100 s: (0.9)

2nd speed rpm : 350.0 Rack travel in mm : 5.6...5.8

Del.quantity cm3/: 1.4...2.0 100 s: (1.1...2.3)

Spread cm3 : 0.8

100 s: (1.2)

GUIDE SLEEVE POSITION Control-lever position

Degree: -3

Speed rpm: 800

Rack travel in mm : 0.30...0.70

FULL LOAD DELIV. AT FULL LOAD STOP

1st version

Speed rpm: 650 Aneroid pressure h: 650

Del.quantity : 201.0...203.0

1000 : (198.0...206.0) Spread cm3 : 5.00

1000 : (9.00)

RATED SPEED

1st version Control lever

position degrees: 41...49

F18

Testing: 1st rack travel in: 12.30 rpm : 1080...1085 Speed 2nd rack travel in: 4.00 rpm : 1160...1173 Speed 4th rack travel in: 1300 rom : 0.30...1.40 Speed LOW IDLE 1 Control Lever position degrees: 18...26 Setting point w/out bumper spring rpm : 350 Speed Rack travel in mm : 5.7 Speed rpm : 350 Rack travel in mm : 5.60...5.80 SET IDLE AUXILIARY SPRING Rack travel in mm : 2.00 TORQUE CONTROL Torque control curve - 1st version 1st speed rpm : 1030 Rack travel in m: 13.30...13.50 2nd speed rpm : 950 Rack travel in m: 13.70...13.90 3rd speed rpm : 875 Rack travel in m: 14.20...14.40 4th speed rpm : 750 Rack travel in m: 14.70...14.90 Aneroid/Altitude Compensator Test 1st version Settina : 600 Speed rpm Pressure hPa : 650 Rack travel mm : 14.00...14.20 Measurement 1/min: 600 Speed 1st pressure hPa : 300 Rack travel in m: 12.30...12.50 2nd pressure hPa : 400 Rack travel in m: 13.20...13.40 3rd pressure hPa : 850 Rack travel in m: 14.30...14.50 4th pressure hPa : -Rack travel in m: 11.30...11.60 FUEL DELIVERY CHARACTERISTICS

Del.quantity cm3/: 190.0...193.0 1000 s: (187.0...196.0) cm3 : 8.00Spread 1000 s: (12.0) Aneroid pressure h: 1200 Speed rpm Del.quantity cm3/: 214.0...219.0 1000 s: (211.0...222.0) Spread cm3 : 8.00 1000 s: (12.0) Aneroid pressure h: -Speed rpm Del.quantity cm3/: 142.0...144.0 1000 s: (139.0...147.0) cm3 : 8.00Spread 1000 s: (12.0) **BREAKAWAY** 1st version

1mm rack travel less than

full load rack tr: 12.30 rpm : 1080...1085 Speed

STARTING FUEL DELIVERY

Speed rpm : 100 Del.quantity cm3/ : 190.0...210.0 1000 s: (186.0...214.0)

Remarks:

1st version

Aneroid pressure h: 1200 Speed rpm : 1030

Note remarks

: MB 11,7 c 5 Test sheet : 27.05.91 Edition

Replaces

: ISO-4113 Test oil

Combination no. : 0 402 776 806T3

Injection pump

Pump designation : PES6P120A720LS7120

: 0 412 726 803 EP type number

Governor

: RSV350...1050P0A529 Governor design.

: 0 421 833 317 Governer no.

Customer-spec. information

: MERCEDES-BENZ Customer

: 0M447 A Engine

1st version kW : 213.0 : 2100 Rated speed

TEST BENCH REQUIREMENTS

Test oil

inlet temp. °C : 38...42

Overflow valve

: 1 417 413 025

Inlet press., bar: 1.50

Overflow

quantity min. 1/h: 100...120

Test nozzle holder

: 1 688 901 019 assembly

Opening

: 207...210 pressure, bar

Orifice plate

diameter mm : 0,8

Test lines : 1 680 750 067

Outside diameter

x Wall thickness

x Length mm : 6.00x1.50x1000

(A) Injection pump setting values Insp. values in parentheses Set equal delivery quant.

per values ___

BEGINNING OF DELIVERY

Test pressure, bar: 25...27

: 5.20...5.30 : (5.15...5.35) Prestroke mm

Rack travel in mm : 9.00...12.00 Firing order : 6-2-4-1-5-3

Phasing : 0-60-120-180-240-300

Tolerance + - ° : 0.50 (0.75)

Time to cyl. no. : 6

BASIC SETTING

1st speed rom: 650

Rack travel in mm : 14.00...14.20

Del.quantity cm3/: 20.2...20.4

100 s: (19.9...20.7)

cm3 : 0.5Spread

100 s: (0.9)

2nd speed rpm : 350.0

Rack travel in mm: 5.6...5.8 Del.quantity cm3/: 1.4...2.0

100 s: (1.1...2.3)

cm3 : 0.8Spread 100 s: (1.2)

GUIDE SLEEVE POSITION Control-lever position

Degree: -3 rpm : 800 Speed

Rack travel in mm : 0.30...0.70

FULL LOAD DELIV. AT FULL LOAD STOP

1st version

Speed rpm : 650

Aneroid pressure h: 650

Del.quantity : 202.0...207.0)

: 5.00 Spread cm3

1000 : (9.00)

RATED SPEED

1st version

Control lever

position degrees: 41...49

F20

Testing: 1st rack travel in: 12.30 rpm : 1080...1085 Speed 2nd rack travel in: 4.00 rpm : 1160...1173 Speed 4th rack travel in: 1300 rom : 0.30...1.40Speed LOW IDLE 1 Control lever position degrees: 18...26 Setting point w/out bumper spring rpm : 350 Rack travel in mm: 5.7 Speed rpm : 350 Rack travel in mm : 5.60...5.80 SET IDLE AUXILIARY SPRING Rack travel in mm : 2.00 TORQUE CONTROL Torque control curve - 1st version st speed rpm : 1030 Rack travel in m: 13.30...13.50 1st speed 2nd speed rpm : 950 Rack travel in m: 13.70...13.90 rpm : 875 3rd speed Rack travel in m: 14.20...14.40 4th speed rpm : 750 Rack travel in m: 14.70...14.90 Aneroid/Altitude Compensator Test 1st version Setting : 600 Speed rpm Pressure hPa : 650 Rack travel mm : 14.00...14.20 Measurement 1/min: 600 Speed 1st pressure hPa : 300 Rack travel in m: 12.30...12.50 2nd pressure hPa : 400 Rack travel in m: 13.20...13.40 3rd pressure hPa : 850 Rack travel in m: 14.30...14.50 4th pressure hPa : -Rack travel in m: 11.30...11.60 FUEL DELIVERY CHARACTERISTICS 1st version Aneroid pressure h: 1200 Speed rpm : 1030

Del.quantity cm3/: 194.0...197.0 1000 s: (191.0...200.0) cm3 : 8.00 Spread 1000 s: (12.0) Aneroid pressure h: 1200 Speed rpm : 750 Del.quantity cm3/: 219.0...224.0 1000 s: (216.0...227.0) cm3 : 8.00 Spread 1000 s: (12.0) Aneroid pressure h: -Speed rpm Del.quantity cm3/: 144.0...146.0 1000 s: (141.0...149.0) cm3 : 8.00 Spread 1000 s: (12.0) **BREAKAWAY**

1st version 1mm rack travel less than

full load rack tr: 12.30 rpm : 1080...1085 Speed

STARTING FUEL DELIVERY

Speed rpm : 100 Del.quantity cm3/: 190.0...210.0 1000 s: (186.0...214.0)

Remarks:

Note remarks

: CUM 8,3 a95 Test sheet : 16.01.91 Edition

Replaces

Test oil : ISO-4113

: 9 400 083 449DA Combination no.

Injection pump

Pump designation : PES6A1000320/3RS2691

: 9 410 230 025 EP type number

Governor

Governor design. : RSV400...1100A2C2209

: 9 420 083 201 Governer no.

Cust. part no. : 3354634-VERSA030

Customer-spec. information Customer : CUMMINS

: 6 CT 8.3 Engine

: 160.3 1st version kW : 2200 Rated speed

TEST BENCH REQUIREMENTS

Test oil

inlet temp. °C : 38...42

Overflow valve

: 1 417 413 047

Inlet press., bar: 1.50

Test nozzle holder

: 0 681 343 009 assembly

Openina

pressure, bar : 172...175

: 1 680 750 014 Test Lines

Outside diameter

x Wall thickness

x Length mm : 6.00x2.00x600

(A) Injection pump setting values Insp. values in parentheses Set equal delivery quant.

per values ____

BEGINNING OF DELIVERY

Test pressure, bar: 25...27

: 2.80...2.90 : (2.75...2.95) Prestroke mm

Rack travel in mm : 9.00...12.00 Firing order : 1-5-3-6-2-4

Firing order

: 0-60-120-180-240-300 Phasina

Tolerance + - ° : 0.50 (0.75)

Time to cyl. no. : 1

BEGINNING OF DELIVERY DIFFERENCE

betw. rack trav. m: 9.00...12.00 & maximum rack tra: 21.00 Difference ° CS : 3.00...4.00

BASIC SETTING

1st speed rpm: 1250

Rack travel in mm : 11.80...11.90

Del.guantity cm3/: 11.5...11.7

100 s: (11.3...11.9)

cm3 : 0.3Spread

100 s: (0.6)

rpm : 400.02nd speed Rack travel in mm: 5.8...6.0

Del.quantity cm3/: 1.8...2.2 100 s: (1.5...2.4)

Spread cm3 : 0.3

100 s: (0.5)

GUIDE SLEEVE POSITION Control-lever position

Degree: -3

Speed rpm: 800 Rack travel in mm: 0.30...0.70

Governor spring pre-tension

Click setting x : 2.50

FULL LOAD DELIV. AT FULL LOAD STOP

1st version

rpm : 1250 Speed

: 115.0...117.0 Del.quantity

1000 : (113.0...119.0)

cm3 : 3.50 Spread

1000 : (6.00)

RATED SPEED

1st version Control Lever

position degrees: 90...98

Testina:

1st rack travel in: 10.80

rpm : 1290...1300 Speed

2nd rack travel in: 4.00

Speed rpm: 1330...1360 4th rack travel in: 1500

rpm : 0.30...1.70 Speed

LOW IDLE 1 Control lever

position degrees: 62...70

Setting point w/out bumper spring

Speed rpm : 400 Rack travel in mm: 5.4

Testing:

rpm : 100 Speed Minimum rack trave: 19.00 rpm : 400

Rack travel in mm : 5.80...6.30 Rack travel in mm : 2.00

: 540...600 Speed rom

TORQUE CONTROL

Torque control curve - 1st version

rpm : 1250 1st speed

Rack travel in m: 11.80...11.90

rpm : 500 2nd speed

Rack travel in m: 11.80...12.00

5th speed rpm : 400

Rack travel in m: 12.20...12.70

BREAKAWAY

1st version 1mm rack travel less than

full load rack tr: 10.80

rpm : 1290...1300 Speed

STARTING FUEL DELIVERY

rpm : 100

Del.quantity cm3/: 135.0...149.0 1000 s: (132.0...152.0)

Rack travel in mm : 19.00...21.00

LOW IDLE

rpm : 400 Speed

Rack travel in mm : 5.80...6.00 Del.quantity cm3/: 18.0...22.0 1000 s: (15.5...24.5)

Spread cm3 : 3.50

1000 s: (5.50)

Remarks:

Start-of-delivery mark 11° cam angle

after start of delivery cyl. 1

Rack travel in mm : 9.00...12.00 BOSCH INJ. PUMP TEST SPECIFICATIONS Note remarks Test sheet : MB 6,0 e : 03.06.91 Edition : 1.9.88 Replaces Test oil : ISO-4113 Combination no. : 9 400 085 288 Injection pump Pump designation : PES6A90D410RS2596-1 : 9 400 084 008 EP type number Governor Governor design. : RQV300...1300AB1066-: 9 420 080 230 Governer no. Customer-spec. information : MERCEDES-BENZ Customer : OM 366 A Engine : 127.0 1st version kW : 2600 Rated speed TEST BENCH REQUIREMENTS Test oil inlet temp. °C : 38...42 Overflow valve : 1 417 413 047 Inlet press., bar: 1.50 Test nozzle holder : 0 681 343 009 assembly Opening : 172...175 pressure, bar : 1 680 750 008 Test Lines Outside diameter x Wall thickness : 6.00x2.00x600 x Length mm (A) Injection pump setting values Insp. values in parentheses Set equal delivery quant. per values

: 1-5-3-6-2-4 Firing order : 0-60-120-180-240-300 Phasing Tolerance + - ° : 0.50 (0.75) Time to cyl. no. : 1 BASIC SETTING rpm: 1300 1st speed Rack travel in mm : 13.10...13.20 Del.quantity cm3/: 8.6...8.7 100 s: (8.4...8.9) cm3 : 0.3Spread 100 s: (0.5) 2nd speed rpm : 300.0 Rack travel in mm : 8.4...8.6 Del.quantity cm3/: 1.0...1.4 100 s: (0.8...1.6) cm3 : 0.2Spread 100 s: (0.4) (B) Setting of injection pump with governor GUIDE SLEEVE TRAVEL rpm : 1375 1st speed : 8.40...8.50 travel mm : 300 2nd speed rpm : 0.90...1.30 travel mm : 500 3rd speed rpm : 2.20...2.60 travel mm : 800 4th speed rpm : 4.30...4.70 travel mm rpm : 1100 5th speed : 6.10...6.40 travel mm GUIDE SLEEVE POSITION Control-lever position Degree: -1 rpm : 1375 Speed Rack travel in mm : 15.20...17.80 FULL LOAD DELIV. AT FULL LOAD STOP 1st version rpm : 1300Speed Aneroid pressure h: 1000

BEGINNING OF DELIVERY

Prestroke mm

Test pressure, bar: 25...27

: 2.00...2.10

: (1.95...2.15)

cm3 : 3.00 1000 : (5.00) Spread

RATED SPEED

1st version Control lever

position degrees: 108...116

Testing:

1st rack travel in: 12.10 rpm : 1340...1350 Speed

2nd rack travel in: 4.00

rpm : 1470...1500 Speed

4th rack travel in: 1600

rpm : 0.00...1.00Speed

LOW IDLE 1 Control Lever

position degrees: 60...68

Testing:

: 100 Speed rpm Minimum rack trave: 10.00 : 300 rom

Rack travel in mm : 8.40...8.60

CONSTANT REGULATION

rom : 590...660 Speed

TORQUE CONTROL

Dimension a mm : 1.00

Torque control curve - 1st version

1st speed rpm : 1300
Rack travel in m: 13.10...13.20

2nd speed rpm : 800

Rack travel in m: 14.10...14.20

3rd speed rpm : 1000

Rack travel in m: 13.90...14.10

4th speed rpm : 1150

Rack travel in m: 13.30...13.60

Aneroid/Altitude Compensator Test

1st version

Setting

rpm : 500 hPa : 1000 Speed rom Pressure

Rack travel mm : 14.10...14.20

Measurement

1/min: 500 Speed

1st pressure hPa : -

Rack travel in m: 12.80...12.90

2nd pressure hPa : 750

Rack travel in m: 13.90...14.00

3rd pressure hPa : 650

Rack travel in m: 13.20...13.40

START CUT-OUT

Speed 1/min: 220 (240)

FUEL DELIVERY CHARACTERISTICS

1st version

Aneroid pressure h: 1000

Speed rpm : 800

Del.quantity cm3/: 89.0...91.0 1000 s: (86.5...93.5)

Aneroid pressure h: 1000

: 1000 Speed rpm

Del.quantity cm3/: 90.0...92.0 1000 s: (87.5...94.5)

Aneroid pressure h: -

Speed rpm : 500
Del.quantity cm3/: 66.5...68.5
1000 s: (64.5...70.5)

BREAKAWAY

1st version 1mm rack travel less than

full load rack tr: 12.10

rpm : 1340...1350 Speed

STARTING FUEL DELIVERY

Speed rpm : 100 Del.quantity cm3/: 71.0...81.0

1000 s: (68.0...84.0)

Rack travel in mm : 14.70...15.70

Remarks:

Note remarks

Test sheet : MB 6,0 g 2 : 16.01.91 Edition : 24.11.89 Replaces Test oil : ISO-4113

Combination no. : 9 400 085 310

Injection pump

Pump designation : PES6A95D41ORS2772 EP type number : 9 400 084 018

Governor

: RQV300...1300AB1066--Governor design.

: 9 420 080 279 Governer no.

Customer-spec. information

: MERCEDES-BENZ Customer

: OM 366 LA Engine

: 155.0 1st version kW : 2600 Rated speed

TEST BENCH REQUIREMENTS

Test oil

inlet temp. °C : 38...42

Overflow valve

: 1 417 413 006

Inlet press., bar: 1.50

Test nozzle holder

assembly : 0 681 343 009

Openina

pressure, bar : 172...175

: 1 680 750 015 Test lines

Outside diameter

x Wall thickness

: 6.00x1.50x600 x Length mm

(A) Injection pump setting values Insp. values in parentheses Set equal delivery quant.

per values

BEGINNING OF DELIVERY

Test pressure, bar: 25...27

: 3.20...3.30 Prestroke mm

: (3.15...3.35)

Rack travel in mm : 9.00...12.00

: 1-5-3-6-2-4 Firing order

: 0-60-120-180-240-300 Phasing

Tolerance + - ° : 0.50 (0.08)

BASIC SETTING

rpm: 13001st speed

Rack travel in mm : 11.10...11.20

Del.quantity cm3/: 9.8...10.0

100 s: (9.6...10.2)

cm3 : 0.3Spread

100 s: (0.6)

rpm : 300.0 2nd speed Rack travel in mm: 6.9...7.1 Del.quantity cm3/: 0.8...1.4

100 s: (0.6...1.6)

cm3 : 0.3 Spread 100 s: (0.5)

(B) Setting of injection pump with governor

GUIDE SLEEVE TRAVEL

1st speed rpm : 300

travel mm : 0.80...1.30 rpm : 500 : 2.30...2.80

2nd speed

travel mm

3rd speed : 750 rpm

: 4.10...4.30 travel mm : 1500

4th speed man : 8.50...8.60 travel mm

GUIDE SLEEVE POSITION

Control-lever position

Degree: -1

Speed rpm : 1500 Rack travel in mm : 15.20...17.80

FULL LOAD DELIV. AT FULL LOAD STOP

1st version

rpm : 1300 Speed

Aneroid pressure h: 700

: 98.0...100.0 Del.quantity 1000 : (96.0...102.0)

: 3.50 cm3 Spread

1000 : (6.00)

RATED SPEED

1st version Control Lever

position degrees: 106...114

Testing:

1st rack travel in: 10.10

rpm : 1360...1370 Speed

2nd rack travel in: 4.00

rpm : 1490...1520 Speed

4th rack travel in: 1650

Speed rpm : 0.00...1.00

LOW IDLE 1 Control lever

position degrees: 62...70

Testing:

rpm : 100 Speed Minimum rack trave: 8.00 rpm : 300

Rack travel in mm : 6.90...7.10

CONSTANT REGULATION

rpm : 420...550 Speed

Aneroid/Altitude Compensator Test

1st version

Setting

rpm : 500 hPa : 700 Speed rpm Pressure

Rack travel mm : 11.10...11.20

Measurement

 $1/\min : 500$ Speed

1st pressure hPa : -

Rack travel in m: 9.40...9.70

2nd pressure hPa : 450
Rack travel in m: 10.60...10.70
3rd pressure hPa : 300
Rack travel in m: 9.90...10.10

START CUT-OUT

1/min: 220 (240) Speed

FUEL DELIVERY CHARACTERISTICS

1st version

Aneroid pressure h: 700 rpm : 700 Speed

Del.quantity cm3/: 86.0...89.0 1000 s: (83.5...91.5)

Aneroid pressure h: -

rpm : 500 Speed

Del.quantity cm3/: 59.5...61.5 1000 s: (57.5...63.5)

BREAKAWAY

1st version

1mm rack travel less than

full load rack tr: 10.10

rpm : 1360...1370 Speed

STARTING FUEL DELIVERY

Speed rpm : 100
Del.quantity cm3/ : 78.0...90.0
1000 s: (-)
Rack travel in mm : 13.60...13.80

Remarks:

F27

Note remarks

Test sheet : FOR 6,6 k 1 Edition : 16.01.91 : 26.3.90 Replaces : ISO-4113 Test oil

: 9 400 085 312 Combination no.

Injection pump

Pump designation : PES6A95D41ORS2742 : 9 400 084 011 EP type number

Governor

: RQV350...1300AB1220-Governor design.

: 9 420 080 280 Governer no.

Customer-spec. information : FNH Customer

: 6.6 L Engine

: 139.0 1st version kW Rated speed : 2600

TEST BENCH REQUIREMENTS

Test oil

inlet temp. °C : 38...42

Overflow valve

: 1 417 413 047

Inlet press., bar: 1.50

Test nozzle holder

: 0 681 343 009 assembly

Openina

pressure, bar : 172...175

: 1 680 750 008 Test Lines

Outside diameter

x Wall thickness

: 6.00X2.00X600 x Length mm

(A) Injection pump setting values Insp. values in parentheses Set equal delivery quant. per values

BEGINNING OF DELIVERY

Test pressure, bar: 25...27

Prestroke mm : 3.15...3.25

: (3.10...3.30)

Rack travel in mm : 9.00...12.00

: 1-5- 3- 6- 2- 4 Firing order

: 0-60-120-180-240-300 Phasing

: 0.50 (0.75) Tolerance + - °

Time to cyl. no. : 1

BEGINNING OF DELIVERY DIFFERENCE

betw. rack tray. m: 9.00...12.00 & maximum rack tra: 21.00 Difference ° CS : 2.00...3.00

BASIC SETTING

1st speed rpm : 1300

Rack travel in mm: 13.20...13.30

Del.quantity cm3/: 10.1...10.3

100 s: (9.9...10.6)

Spread cm3 : 0.3

100 s: (0.6)

rpm : 350.02nd speed Rack travel in mm: 6.0...6.2

Del.quantity cm3/: 1.5...2.1

100 s: (1.3...2.2)

Spread cm3: 0.3

100 s: (0.5)

(B) Setting of injection pump with governor

GUIDE SLEEVE TRAVEL

rpm : 1450 1st speed : 8.50...8.60 travel mm 2nd speed rpm : 350

: 1.10...1.80 travel mm 3rd speed : 500 rpm

2.70...3.10 travel mm : 700 4th speed rpm

3.50...3.90 travel mm

1000 5th speed rpm : 4.90...5.30 travel mm

GUIDE SLEEVE POSITION Control-lever position

Degree: -1

rpm : 1540 Speed Rack travel in mm : 6.70...9.30

FULL LOAD DELIV. AT FULL LOAD STOP

1st version rpm : 1300Speed Aneroid pressure h: 900 : 101.5...103.5 Del.quantity 1000 : (99.0...106.0) : 3.50 Spread cm3 1000 : (6.00) RATED SPEED 1st version Control Lever position degrees: 111...119 Testina: 1st rack travel in: 12.20 rpm : 1340...1350 Speed 2nd rack travel in: 4.00 rpm : 1490...1520 Speed 4th rack travel in: 1630 rpm : 0.00...1.00Speed LOW IDLE 1 Control Lever position degrees: 65...73 Testing: Speed : 100 rom Minimum rack trave: 9.00 : 350 rom Rack travel in mm : 6.00...6.20 CONSTANT REGULATION rpm : 370...440 Speed Aneroid/Altitude Compensator Test 1st version Setting : 500 Speed rom hPa : 900 Pressure Rack travel mm : 13.20...13.30 Measurement 1/min: 500 Speed 1st pressure hPa : -Rack travel in m: 10.10...10.40 2nd pressure hPa : 380 Rack travel in m: 11.00...11.30 3rd pressure hPa : 530 Rack travel in m: 12.80...12.90 START CUT-OUT

1/min: 290 (310)

FUEL DELIVERY CHARACTERISTICS 1st version Aneroid pressure h: 900 : 800 Speed rpm Del.quantity cm3/: 99.5...103.5 1000 s: (97.5...105.5) Aneroid pressure h: -Speed rpm : 500 Del.quantity cm3/: 65.5...67.5 1000 s: (63.0...70.0) BREAKAWAY 1st version 1mm rack travel less than full load rack tr: 12.20 rpm : 1340...1350 Speed STARTING FUEL DELIVERY : 100 Speed rpm Del.quantity cm3/: 155.0...175.0 1000 s: (152.0...178.0) Rack travel in mm: 19.00...21.00 LOW IDLE rpm : 350 Speed Rack travel in mm : 6.00...6.20 Del.quantity cm3/: 15.0...21.0 1000 s: (13.5...22.5) Spread cm3: 3.50 1000 s: (5.50) Remarks: Set shutoff stop 1.5...2.0 mm before shutoff.

Speed

Note remarks

Test sheet : MB 6,0 g 3 Edition : 02.08.97 : 26.3.90 Replaces Test oil : ISO-4113

Combination no. : 9 400 085 315

Injection pump

Pump designation : PES6A95D410RS2772 EP type number : 9 400 084 018

Governor

: RQV300...1300AB1066-Governor design.

: 9 420 080 282 Governer no.

Customer-spec. information

: MERCEDES-BENZ Customer

: 0M 366 A Engine

: 125.0 1st version kW Rated speed : 2600

TEST BENCH REQUIREMENTS

Test oil

inlet temp. °C : 38...42

Overflow valve

: 1 417 413 006

Inlet press., bar: 1.50

Test nozzle holder

: 0 681 343 009 assembly

Opening

: 172...175 pressure, bar

Test Lines : 1 680 750 015

Outside diameter

x Wall thickness

x Length mm : 6.00x1.50x600

(A) Injection pump setting values Insp. values in parentheses Set equal delivery quant.

per values

BEGINNING OF DELIVERY

Test pressure, bar: 25...27

: 3.20...3.30 Prestroke mm

: (3.15...3.35)

Rack travel in mm : 9.00...12.00

Firing order : 1-5-3-6-2-4

Phasing : 0-60-120-180-240-300

Tolerance + - ° : 0.50 (0.75)

BASIC SETTING

rpm : 13001st speed

Rack travel in mm : 10.40...10.50

Del.guantity cm3/: 8.9...9.1

100 s: (8.7...9.3)

Spread cm3 : 0.3

100 s: (0.6)

rpm : 300.02nd speed

Rack travel in mm : 6.9...7.1 Del.guantity cm3/: 0.8...1.4

100 s: (0.6...1.6)

cm3 : 0.3Spread 100 s: (0.5)

(B) Setting of injection pump with governor

GUIDE SLEEVE TRAVEL

rpm : 300 1st speed : 0.80...1.30 travel mm

: 500 2nd speed rpm

: 2.30...2.80 travel mm

3rd speed rom : 750

: 4.10...4.30 travel mm

: 1500 4th speed rpm

: 8.50...8.60 travel mm

GUIDE SLEEVE POSITION Control-lever position

Degree: -1

rpm : 1500 Speed

Rack travel in mm : 15.20...17.80

FULL LOAD DELIV. AT FULL LOAD STOP

1st version

rpm : 1300 Speed

Aneroid pressure h: 700

: 89.0...91.0 Del.quantity

1000 : (87.0...93.0)

: 3.50 Spread cm3

1000 : (6.00)

RATED SPEED

FUEL DELIVERY CHARACTERISTICS 1st version Control Lever position degrees: 106...114 1st version Del.quantity cm3/: 86.0...89.0 1000 s: (83.5...91.5) Aneroid pressure h: 700 Speed rnm 1000 Aneroid pressure h: 700 Testing: 1st rack travel in: 9.40 rpm : 1360...1370 Speed 2nd rack travel in: 4.00 Speed rpm : 1000 Del.quantity cm3/: 88.0...91.0 1000 s: (85.5...93.5) rpm : 1490...1520 Speed 4th rack travel in: 1650 npm : 0.00...1.00Speed Aneroid pressure h: rpm_ : 500 Speed LOW IDLE 1 Del.quantity cm3/: 50.0...52.0 1000 s: (48.0...54.0) Control lever position degrees: 62...70 Testing: rpm : 100 BREAKAWAY Speed Minimum rack trave: 8.00 : 300 1st version Speed rpm Rack travel in mm : 6.90...7.10 1mm rack travel less than full load rack tr: 9.40 CONSTANT REGULATION rpm : 1360...1370 rpm : 420...550 Speed Speed TORQUE CONTROL STARTING FUEL DELIVERY Dimension a mm : 0.50 Torque control curve - 1st version rt speed rpm : 1300 Rack travel in m: 10.40...10.50 rpm : 100 1st speed Speed Del.quantity cm3/: 78.0...90.0 1000 s: (-) rpm : 800 2nd speed Rack travel in m: 10.90...11.00 Rack travel in mm : 13.60...13.80 4th speed rpm : 1000 Rack travel in m: 10.60...10.80 Remarks: Aneroid/Altitude Compensator Test 1st version Setting Speed rpm : 500 hPa : 700 Pressure Rack travel mm : 10.90...11.00 Measurement 1/min: 500 Speed 1st pressure hPa : -Rack travel in m: 9.00...9.30

2nd pressure hPa : 460
Rack travel in m: 10.10...10.20

3rd pressure hPa : 300
Rack travel in m: 9.40...9.60 START CUT-OUT 1/min: 220 (240) Speed

603

Note remarks

Test sheet : MB 6,0 g 4 Edition : 02.08.97 : 3.7.90 Replaces

Test oil : TSO-4113

Combination no. : 9 400 085 317

Injection pump

Pump designation : PES6A95D41ORS2772 EP type number : 9 400 084 018

Governor

: RQV300...1300AB1066-Governor design.

: 9 420 080 265 Governer no.

Customer-spec. information

Customer : MERCEDES-BENZ

: OM 366 A Engine

: 125.0 1st version kW : 2600 Rated speed

TEST BENCH REQUIREMENTS

Test oil

inlet temp. °C : 38...42

Overflow valve

: 1 417 413 006

Inlet press., bar: 1.50

Test nozzle holder

assembly : 0 681 343 009

Opening

: 172...175 pressure, bar

: 1 680 750 015 Test lines

Outside diameter

x Wall thickness

: 6.00X1.50X600 x Length mm

(A) Injection pump setting values Insp. values in parentheses Set equal delivery quant. per values

BEGINNING OF DELIVERY Test pressure, bar: 25...27

: 3.20...3.30 : (3.15...3.35) Prestroke mm

Rack travel in mm : 9.00...12.00

: 1-5-3-6-2-4 Firing order

: 0-60-120-180-240-300 Phasing

Tolerance $+ - ^{\circ} : 0.50 (0.75)$

BASIC SETTING

1st speed rpm : 1300

Rack travel in mm : 10.40...10.50

Del.guantity cm3/: 8.9...9.1

100 s: (8.7...9.3)

cm3 : 0.3Spread

100 s: (0.6)

rpm : 300.0 2nd speed Rack travel in mm: 6.9...7.1 Del.quantity cm3/: 0.8...1.4

100 s: (0.6...1.6) cm3 : 0.3 Spread 100 s: (0.5)

(B) Setting of injection pump with governor

GUIDE SLEEVE TRAVEL

rpm : 300 1st speed

: 0.80...1.30 travel mm

rpm : 500 2nd speed : 2.30...2.80 travel mm

3rd speed : 750 rpm travel mm : 4.10...4.30

1500 4th speed rpm

: 8.50...8.60 travel mm

GUIDE SLEEVE POSITION Control-lever position

Degree: -1

rpm : 1500 Speed

Rack travel in mm : 15.20...17.80

FULL LOAD DELIV. AT FULL LOAD STOP

1st version

rpm : 1300Speed Aneroid pressure h: 700

: 89.0...91.0 Del.quantity 1000 : (87.0...93.0)

cm3 : 3.50 Spread 1000 : (6.00)

RATED SPEED

1st version Control Lever position degrees: 106...114 Testina: 1st rack travel in: 9.40 rpm : 1360...1370 Speed 2nd rack travel in: 4.00 Speed rpm : 1490...1520 4th rack travel in: 1650 rpm : 0.00...1.00 Speed LOW IDLE 1 Control Lever position degrees: 62...70 Testing: Speed rpm : 100 Minimum rack trave: 8.00 rpm Speed Rack travel in mm : 6.90...7.10 CONSTANT REGULATION rpm : 420...550 Speed TORQUE CONTROL Dimension a mm : 0.50Torque control curve - 1st version 1st speed rpm : 1300 Rack travel in m: 10.40...10.50 2nd speed rpm : 800 Rack travel in m: 10.90...11.00 4th speed rpm : 1000 Rack travel in m: 10.60...10.80 Aneroid/Altitude Compensator Test 1st version Setting rpm : 500 hPa : 700 Speed rpm Pressure : 10.90...11.00 Rack travel mm Measurement 1/min: 500 Speed 1st pressure hPa : -Rack travel in m: 9.00...9.30 2nd pressure hPa : 460 Rack travel in m: 10.10...10.20 3rd pressure hPa : 300 Rack travel in m: 9.40...9.60

FUEL DELIVERY CHARACTERISTICS 1st version Aneroid pressure h: 700 rpm : 800 Speed Del.quantity cm3/: 86.0...89.0 1000 s: (83.5...91.5) Aneroid pressure h: 700 Speed : 1000 rpm Del.quantity cm3/: 88.0...91.0 1000 s: (85.5...93.5) Aneroid pressure h: -Speed rpm: 500
Del.quantity cm3/: 50.0...52.0
1000 s: (48.0...54.0) **BREAKAWAY** 1st version 1mm rack travel less than full load rack tr: 9.40 rpm : 1360...1370 Speed STARTING FUEL DELIVERY : 100 Speed rpm Del.quantity cm3/: 78.0...90.0 1000 s: (-) Rack travel in mm : 13.60...13.80 Remarks:

Speed

START CUT-OUT

1/min: 220 (240)

Note remarks

: FOR 6,6 p 1 : 26.06.91 Test sheet Edition Replaces : 9.4.91 Test oil : ISO-4113

: 9 400 085 326 Combination no.

Injection pump

Pump designation : PES6A95D410RS2802 : 9 400 084 025 EP type number

Governor

: RQV350...1300AB1220-Governor design.

: 9 420 080 308 Governer no.

Customer-spec. information : FORD (FNH) Customer

: 6.6 L - TC Engine

: 139.0 1st version kW : 2600 Rated speed

TEST BENCH REQUIREMENTS

Test oil

inlet temp. °C : 38...42

Overflow valve

: 1 457 413 010

Inlet press., bar: 1.50

Test nozzle holder

: 0 681 343 009 assembly

Opening

: 172...175 pressure, bar

: 1 680 750 008 Test Lines

Outside diameter

x Wall thickness

x Length mm : 6.00x2.00x600

(A) Injection pump setting values Insp. values in parentheses Set equal delivery quant.

per values

BEGINNING OF DELIVERY

Test pressure, bar: 25...27

: 3.15...3.25 Prestroke mm

: (3.10...3.30)

Rack travel in mm : 9.00...12.00

: 1-5-3-6-2-4 Firing order

: 0-60-120-180-240-300 Phasing

: 0.50 (0.75) Tolerance + - °

Time to cyl. no. : 1

BEGINNING OF DELIVERY DIFFERENCE

betw. rack trav. m: 9.00...12.00 & maximum rack tra: 21.00

Difference * CS : 2.00...3.00

BASIC SETTING

rpm: 1300 1st speed

Rack travel in mm: 13.20...13.30

Del.guantity cm3/: 10.1...10.3

100 s: (9.9...10.6)

cm3 : 0.3Spread

100 s: (0.6)

rpm : 350.0 2nd speed

Rack travel in mm: 6.0...6.2 Del.quantity cm3/: 1.5...2.1

100 s: (1.3...2.2)

cm3 : 0.3Spread

100 s: (0.5)

(B) Setting of injection pump with governor

GUIDE SLEEVE TRAVEL

rpm : 14501st speed 8.50...8.60 travel mm

2nd speed : 350 rpm 1.10...1.80 travel mm

500 3rd speed man

2.70...3.10 travel mm

4th speed man

3.50...3.90 1000 travel mm

5th speed rpm

: 4.90...5.30 travel mm

GUIDE SLEEVE POSITION

Control-lever position Degree: -1

rpm : 1540 Speed

Rack travel in mm : 6.70...9.30

FULL LOAD DELIV. AT FULL LOAD STOP

1st version

rpm : 1300Speed Aneroid pressure h: 900

: 101.5...103.5 Del.quantity

1000 : (99.0...106.0)

: 3.50 cm3Spread 1000 : (6.00)

RATED SPEED

1st version Control lever

position degrees: 111...119

Testing:

1st rack travel in: 12.20 Speed rpm : 1340...1350 2nd rack travel in: 4.00

Speed rpm: 1490...1520 4th rack travel in: 1630

rom : 0.00...1.00 Speed

LOW IDLE 1 Control Lever

position degrees: 65...73

Testing:

Speed rpm : 100 Minimum rack trave: 9.00 : 350 Speed rom

Rack travel in mm : 6.00...6.20

CONSTANT REGULATION

rpm : 370...440 Speed

Aneroid/Altitude Compensator Test

1st version

Setting

: 500 Speed rom hPa : 900 Pressure

Rack travel mm : 13.20...13.30

Measurement

1/min: 500 Speed

1st pressure hPa : -

Rack travel in m: 10.70...11.00

2nd pressure hPa : 350 Rack travel in m: 11.20...11.50

3rd pressure hPa : 500

Rack travel in m: 12.60...12.70

START CUT-OUT

1/min: 290 (310) Speed

FUEL DELIVERY CHARACTERISTICS

1st version

Aneroid pressure h: 900

: 800 Speed rpm

Del.quantity cm3/: 99.5...103.5 1000 s: (97.5...105.5)

Aneroid pressure h: -

rpm : 500 Speed

Del.quantity cm3/: 71.0...73.0 1000 s: (68.5...75.5)

BREAKAWAY

1st version

1mm rack travel less than

full load rack tr: 12.20 speed rpm : 1340...1350 Speed

STARTING FUEL DELIVERY

Speed rpm : 100 Del.quantity cm3/ : 155.0...175.0 1000 s: (152.0...178.0)

Rack travel in mm : 19.00...21.00

LOW IDLE

rpm : 350 Speed

Rack travel in mm : 6.00...6.20

Del.quantity cm3/: 15.0...21.0 1000 s: (13.5...22.5)

Spread cm3 : 3.50

1000 s: (5.50)

Remarks:

Set shutoff stop 1.5...2.0 mm before

shutoff.

GO7

Note remarks

Test sheet : MWM 3,9 e Edition : 2.8.91 : 16.1.91 Replaces Test oil : ISO-4113

: 9 400 085 328 Combination no.

Injection pump

Pump designation : PES4A90D32ORS2798 EP type number : 9 400 084 021

Governor

Governor design. : RS350/1400A2B2255R

Governer no. : 9 420 083 247

Customer-spec. information Customer : MWM

: TD 229 EC 4 Engine

: 90.8 1st version kW Rated speed : 2800

TEST BENCH REQUIREMENTS

Test oil

inlet temp. °C : 38...42

Overflow valve

: 1 417 413 046

Inlet press., bar: 1.50

Test nozzle holder

: 0 681 343 009 assembly

Opening 1 and 1

: 172...175 pressure, bar

: 1 680 750 014 Test lines

Outside diameter x Wall thickness

x Length mm : 6.00X2.00X600

(A) Injection pump setting values Insp. values in parentheses Set equal delivery quant. per values

BEGINNING OF DELIVERY Test pressure, bar: 25...27

: 2.65...2.75 Prestroke mm : (2.60...2.80) Rack travel in mm : 9.00...12.00

G08

: 1-3-4-2 Firing order

: 0-90-180-270 Phasina

Tolerance + - ° : 0.50 (0.75)

Time to cyl. no. : 1

BEGINNING OF DELIVERY DIFFERENCE

betw. rack trav. m: 9.00...12.00 & maximum rack tra: 21.00

Difference ° CS : 3.00...4.00

BASIC SETTING

1st speed rpm: 1400

Rack travel in mm : 12.80...12.90

Del.quantity cm3/: 9.8...9.9

100 s: (9.6...10.1)

cm3 : 0.3Spread

100 s: (0.5)

2nd speed rpm : 350.0 Rack travel in mm : 4.9...5.1 Del.quantity cm3/: 0.6...1.2

100 s: (0.4...1.4) cm3 : 0.2

Spread 100 s: (0.4)

GUIDE SLEEVE POSITION Control-lever position

Degree: -3 rpm : 800

Speed Rack travel in mm : 0.30...1.00

Governor spring pre-tension Click setting x : 6.00

FULL LOAD DELIV. AT FULL LOAD STOP

1st version

Speed rpm : 1400 Aneroid pressure h: 800

: 98.5...99.5 Del.quantity 1000 : (96.5...101.5)

cm3 : 3.00 Spread

1000 : (5.00)

RATED SPEED

1st version

Control Lever position degrees: 62...70 Testina: 1st rack travel in: 11.80 Speed rpm : 1440...1450 2nd rack travel in: 4.00 rpm : 1545...1575 Speed 4th rack travel in: 1700 rpm : 0.30...1.70Speed LOW IDLE 1 Control Lever position degrees: 15...23 Setting point w/out bumper spring rpm : 350 Rack travel in mm : 5.0 Testing: Speed rpm : 250 Minimum rack trave: 6.40 rpm : 350 Rack travel in mm : 4.90...5.10 Rack travel in mm: 3.00 rpm : 400...460 Speed rpm : 800 Maximum rack trave: 2.00 TORQUE CONTROL Torque control curve - 1st version 1st speed rpm : 1400 Rack travel in m: 12.80...12.90 2nd speed rpm : 800 Rack travel in m: 12.80...13.00 4th speed rpm : 550 Rack travel in m: 12.80...13.00 5th speed rpm : 400 Rack travel in m: 14.80...15.20 Aneroid/Altitude Compensator Test 1st version Setting Speed : 500 rpm Pressure hPa : 800 Rack travel mm : 12.80...13.00 Measurement 1/min: 500 Speed 1st pressure hPa : -

Rack travel in m: 9.80...10.20 2nd pressure hPa : 180 Rack travel in m: 10.80...10.90

3rd pressure hPa : 350

Rack travel in m: 12.10...12.40 FUEL DELIVERY CHARACTERISTICS

1st version Aneroid pressure h: 800 Speed rpm: 800 Del.quantity cm3/: 93.5...96.5 1000 s: (91.0...99.0) Aneroid pressure h: rpm : 500 Speed Del.quantity cm3/: 45.5...47.5 1000 s: (43.5...49.5)

BREAKAWAY

1st version 1mm rack travel less than

full load rack tr: 11.80 rpm : 1440...1450 Speed

STARTING FUEL DELIVERY

rpm : 100 Speed Rack travel in mm : 19.00...21.00

Remarks:

: Dimension H = 21.9...22.1 mm

G09

Note remarks

Test sheet : MWM 6,5 a : 03.06.91 Edition

Replaces

: ISO-4113 Test oil

Combination no. : 9 400 085 336

Injection pump

Pump designation : PES6A95D410RS2812 EP type number : 9 400 084 028

Governor

Governor design. : RQV350...1400AB1261L

: 9 420 080 307 Governer no.

Customer-spec. information Customer : MWM

: D 610 / X-10 Engine

1st version kW : 110.7 Rated speed : 2800

TEST BENCH REQUIREMENTS

Test oil

inlet temp. °C : 38...42

Overflow valve

: 1 417 413 047

Inlet press., bar: 1.50

Test nozzle holder

: 0 681 343 009 assembly

Openina

pressure, bar : 172...175

Test lines : 1 680 750 014

Outside diameter x Wall thickness

: 6.00X2.00X600 x Length mm

(A) Injection pump setting values Insp. values in parentheses Set equal delivery quant.

per values

BEGINNING OF DELIVERY

Test pressure, bar: 25...27

: 2.75...2.85 Prestroke mm

: (2.70...2.90)

Rack travel in mm : 9.00...12.00

G10

Firing order : 1-5-3-6-2-4

Phasing : 0-60-120-180-240-300

Tolerance + - ° : 0.50 (0.75)

Time to cyl. no. : 1

BEGINNING OF DELIVERY DIFFERENCE

betw. rack trav. m: 9.00...12.00 & maximum rack tra: 21.00

Difference ° CS : 1.50...2.50

BASIC SETTING

1st speed rpm: 1400

Rack travel in mm : 10.20...10.30

Del.quantity cm3/: 7.6...7.8

100 s: (7.4...8.0)

cm3 : 0.3Spread

100 s: (6.6)

rpm : 350.02nd speed Rack travel in mm : 5.6...5.8

Del.quantity cm3/: 1.0...1.4 100 s: (0.8...1.5)

cm3 : 0.3Spread 100 s: (0.5)

(B) Setting of injection pump with governor

GUIDE SLEEVE TRAVEL

rpm : 1350 1st speed

: 7.10...7.30 travel mm

rpm : 3002nd speed

: 0.80...1.30 travel mm

3rd speed rpm : 550

travel mm : 2.50...3.00

rpm : 800 4th speed

: 3.70...4.20 travel mm rpm : 1500

5th speed

: 8.30...8.80 travel mm

GUIDE SLEEVE POSITION Control-lever position

Degree: -1

rpm : 1490 Speed

Rack travel in mm : 15.20...17.80

FULL LOAD DELIV. AT FULL LOAD STOP

1st version

rpm : 1400Speed

Del.quantity : 76.5...78.5

1000 : (74.5...80.5) cm3 : 3.50

Spread 1000 : (6.00)

RATED SPEED

1st version Control lever

position degrees: 109...117

Testina:

1st rack travel in: 9.20 Speed rpm : 1440...1450

2nd rack travel in: 4.00

rpm : 1535...1565 Speed

4th rack travel in: 1700

rpm : 0.00...1.00 Speed

LOW IDLE 1 Control lever

position degrees: 64...72

Testina:

: 100 Speed rpm Minimum rack trave: 7.00 rpm : 350

Rack travel in mm : 5.60...5.80

CONSTANT REGULATION

rpm : 350...500 Speed

TORQUE CONTROL

Dimension a mm : 0.50

Torque control curve - 1st version

1st speed rpm : 1400

Rack travel in m: 10.20...10.30 nd speed rpm: 700

2nd speed

Rack travel in m: 10.50...10.60

3rd speed rpm : 1000

Rack travel in m: 10.50...10.60

4th speed rpm : 1300

Rack travel in m: 10.20...10.30

START CUT-OUT

1/min: 270 (290) Speed

FUEL DELIVERY CHARACTERISTICS

1st version

: 700 Speed man

Del.quantity cm3/: 66.5...69.5

1000 s: (64.0...72.0)

: 1000 Speed rom

Del.quantity cm3/: 76.5...79.5 1000 s: (74.0...82.0)

BREAKAWAY

1st version

1mm rack travel less than

full load rack tr: 9.20

rpm : 1440...1450 Speed

STARTING FUEL DELIVERY

Speed rpm : 100 Del.quantity cm3/ : 145.0...159.0 1000 s: (142.0...162.0) Rack travel in mm : 19.00...21.00

LOW IDLE

Speed rpm : 350
Rack travel in mm : 5.60...5.80
Del.quantity cm3/ : 10.0...14.0
1000 s: (8.5...15.5)

cm3 : 3.50 Spread

1000 s: (5.50)

Remarks:

G11

Note remarks

: MMM 6,5 a 1 Test sheet : 03.06.91 Edition

Replaces

: ISO-4113 Test oil

Combination no. : 9 400 085 337

Injection pump

Pump designation : PES6A95D410RS2812 : 9 400 084 028 EP type number

Governor

Governor design. : RQV350...1300AB1260L

: 9 420 080 306 Governer no.

Customer-spec. information · MAM Customer

Engine : TD 610 / X-10

: 143.9 1st version kW : 2600 Rated speed

TEST BENCH REQUIREMENTS

Test oil

inlet temp. °C : 38...42

Overflow valve

: 1 417 413 047

Inlet press., bar: 1.50

Test nozzle holder

: 0 681 343 009 assembly

Opening.

pressure, bar : 172...175

: 1 680 750 014 Test lines

Outside diameter

x Wall thickness

: 6.00x2.00x600 x Length mm

(A) Injection pump setting values Insp. values in parentheses Set equal delivery quant.

per values

BEGINNING OF DELIVERY

Test pressure, bar: 25...27

: 2.75...2.85 : (2.70...2.90) Prestroke mm

Rack travel in mm : 9.00...12.00

Firing order : 1-5-3-6-2-4

: 0-60-120-180-240-300 Phasing

Tolerance + - ° : 0.50 (0.75)

Time to cyl. no. : 1

BEGINNING OF DELIVERY DIFFERENCE

betw. rack trav. m: 9.00...12.00

& maximum rack tra: 21.00

Difference ° CS : 1.50...2.50

BASIC SETTING

rom: 1300 1st speed

Rack travel in mm : 12.20...12.30

Del.quantity cm3/: 9.9...10.1

100 s: (9.7...10.3)

Spread cm3 : 0.3

100 s: (0.6)

rpm : 350.02nd speed Rack travel in mm: 5.3...5.5

Del.quantity cm3/: 0.7...1.1 100 s: (0.6...1.3)

cm3 : 0.3 Spread 100 s: (0.5)

(B) Setting of injection pump with governor

GUIDE SLEEVE TRAVEL

1st speed rpm : 1350

: 7.10...7.30 travel mm : 300 2nd speed

rpm : 0.80...1.30 travel mm

: 550 3rd speed rom

: 2.50...3.00 travel mm

: 800 4th speed mgn

: 3.70...4.20 travel mm

5th speed 1500 rpm

: 8.30...8.80 travel mm

GUIDE SLEEVE POSITION Control-lever position

Degree: -1 rpm : 1490 Speed

Rack travel in mm : 15.20...17.80

FULL LOAD DELIV. AT FULL LOAD STOP

G12

rpm : 1300 Speed Aneroid pressure h: 800 Del.quantity : 97.0...103.0) Spread cm3 : 3.50 1000 : (6.00) RATED SPEED 1st version Control lever position degrees: 107...115 Testing: 1st rack travel in: 11.20 rpm : 1340...1350 Speed 2nd rack travel in: 4.00 Speed rpm : 1495...1525 4th rack travel in: 1650 rpm : 0.00...1.00Speed LOW IDLE 1 Control lever position degrees: 63...71 Testing: Speed : 100 rom Minimum rack trave: 6.50 rpm : 350 Rack travel in mm : 5.30...5.50 CONSTANT REGULATION Speed rpm : 350...500 TORQUE CONTROL Dimension a mm : 0.30 Torque control curve - 1st version 1st speed rpm : 1300 Rack travel in m: 12.20...12.30 2nd speed rpm : 800
Rack travel in m: 12.50...12.60
3rd speed rpm : 850
Rack travel in m: 12.50...12.60
4th speed rpm : 1150
Rack travel in m: 12.20...12.30 Aneroid/Altitude Compensator Test 1st version Setting rpm : 500 Speed Pressure hPa : 800 : 12.50...12.60 Rack travel mm Measurement Speed 1/min : 500

1st version

1st pressure hPa : Rack travel in m: 11.60...11.80
2nd pressure hPa : 480
Rack travel in m: 12.30...12.40
3rd pressure hPa : 400 Rack travel in m: 11.90...12.10 START CUT-OUT 1/min : 270 (290) Speed FUEL DELIVERY CHARACTERISTICS 1st version Aneroid pressure h: 800 Speed rpm Del.quantity cm3/: 99.5...102.5 1000 s: (97.0...105.0) Aneroid pressure h: -: 500 Speed rpm Del.quantity cm3/: 80.0...82.0 1000 s: (78.0...84.0) **BREAKAWAY** 1st version 1mm rack travel less than full load rack tr: 11.20 rpm : 1340...1350 Speed STARTING FUEL DELIVERY rpm : 100 Speed Del.quantity cm3/: 145.0...159.0 1000 s: (142.0...162.0) Rack travel in mm : 19.00...21.00 LOW IDLE Speed rpm : 350
Rack travel in mm : 5.30...5.50
Del.quantity cm3/ : 7.5...11.5
1000 s: (6.0...13.0)
Spread cm3 : 3.50
1000 s: (5.50) Remarks:

BOSCH INJ. PUMP TEST SPECIFICATIONS Note remarks

Test sheet : MB 6,0 k 1 Edition : 26.06.91 Replaces : ISO-4113

Test oil

Combination no. : 9 400 085 343

Injection pump

Pump designation : PES6A95D410RS2795 : 9 400 084 020 EP type number

Governor

Governor design. : RQV300...1400AB1065-

18L

: 9 420 080 278 Governer no.

Customer—spec. information

Customer : MERCEDES-BENZ

: OM 366 Engine

: 100.0 1st version kW Rated speed : 2800

TEST BENCH REQUIREMENTS

Test oil

inlet temp. °C : 38...42

Overflow valve

: 1 417 413 047

Inlet press., bar: 1.50

Test nozzle holder

: 0 681 343 009 assembly

Opening

: 172...175 pressure, bar

Test lines : 1 680 750 015

Outside diameter

x Wall thickness

: 6.00x1.50x600 x Length mm

(A) Injection pump setting values Insp. values in parentheses Set equal delivery quant.

per values

BEGINNING OF DELIVERY Test pressure, bar: 25...27

Prestroke mm : 3.20...3.30 : (3.15...3.35)

Rack travel in mm : 9.00...12.00 Firing order : 1-5-3-6-2-4

: 0-60-120-180-240-300 Phasing

Tolerance + - ° : 0.50 (0.75)

BASIC SETTING

rpm: 1400 1st speed

Rack travel in mm : 9.90...10.00

Del.quantity cm3/: 6.8...7.0

100 s: (6.6...7.2)

cm3 : 0.3Spread

100 s: (0.3)

2nd speed rpm : 300.0 Rack travel in mm : 7.8...8.0

Del.quantity cm3/: 0.8...1.4 100 s: (0.6...1.6)

Spread cm3 : 0.3100 s: (0.3)

(8) Setting of injection pump with governor

GUIDE SLEEVE TRAVEL

rpm : 1500 1st speed : 8.50...8.60 travel mm

: 300 2nd speed rpm : 0.80...1.30 travel mm

500 3rd speed rpm

2.30...2.80 travel mm 750 4th speed

rpm : 4.10...4.30 travel mm

GUIDE SLEEVE POSITION Control-lever position

Degree: -1 rpm : 1420 Speed

Rack travel in mm : 15.20...17.80

FULL LOAD DELIV. AT FULL LOAD STOP

1st version

Speed rpm : 1400

Del.quantity : 68.5...70.5 1000 : (66.5...72.5)

: 3.50 Spread cm3

: (3.50) 1000

RATED SPEED

1st version Control lever position degrees: 106...114 Testing: 1st rack travel in: 8.90 Speed rpm : 1460...1470 2nd rack travel in: 4.00 Speed rpm : 1545...1575 4th rack travel in: 1680 Speed rpm : 0.00...1.00LOW IDLE 1 Control lever position degrees: 66...74 Testina: rpm : 100 Speed Minimum rack trave: 8.00 Speed rpm : 300 Rack travel in mm : 7.80...8.00 CONSTANT REGULATION rpm : 480...630 Speed START CUT-OUT 1/min : 220 (240) Speed FUEL DELIVERY CHARACTERISTICS 1st version Speed rpm : 600 Del.quantity cm3/: 50.0...53.0 1000 s: (47.5...55.5) **BREAKAWAY** 1st version 1mm rack travel less than full load rack tr: 8.90 rpm : 1460...1470 Speed STARTING FUEL DELIVERY Speed rpm : 100
Del.quantity cm3/ : 78.0...90.0
1000 s: (75.0...93.0)
Rack travel in mm : 14.00...14.20 Remarks: :

BOSCH INJ. PUMP TEST SPECIFICATIONS Note remarks : MB 11,8 o 2 : 03.06.91 Test sheet Edition Replaces : 16.1.91 : ISO-4113 Test oil Combination no. : 9 400 087 318 Injection pump Pump designation : PE6P110A720RS371-1 EP type number : 0 411 816 166 Governor Governor design. : RQ300/1050PA419-1 Governer no. : 9 420 080 194 Customer-spec. information Customer : MERCEDES-BENZ Engine : OM 355-A 1st version kW : 210.0 : 2100 Rated speed TEST BENCH REQUIREMENTS Test oil inlet temp. °C : 38...42 Overflow valve : 1 417 413 000 Inlet press., bar: 1.50 Test nozzle holder : 0 681 343 009 assembly Opening pressure, bar : 172...175 : 1 680 750 004 Test lines Outside diameter x Wall thickness : 6.00x1.50x600 x Length mm (A) Injection pump setting values Insp. values in parentheses Set equal delivery quant. per values BEGINNING OF DELIVERY Test pressure, bar: 25...27 : 2.80...2.90 Prestroke mm : (2.75...2.95)

Rack travel in mm : 9.00...12.00

Firing order : 1-5-3-6-2-4 : 0-60-120-180-240-300 Phasina Tolerance $+ - ^{\circ} : 0.50 (0.75)$ Time to cyl. no. : 1 BASIC SETTING 1st speed rpm: 1050 Rack travel in mm : 11.90...12.00 Del.guantity cm3/: 16.1...16.3 100 s: (15.9...16.5) cm3 : 0.4Spread 100 s: (0.7) 2nd speed rpm : 300.0 Rack travel in mm : 5.9...6.1 Del.quantity cm3/ : 1.4...2.0 100 s: (1.2...2.2) cm3 : 0.3Spread 100 s: (0.4) GUIDE SLEEVE POSITION Control-lever position Degree: -1 Speed rpm : 600 Rack travel in mm : 15.60...16.40 FULL LOAD DELIV. AT FULL LOAD STOP 1st version rpm : 1050 Speed : 161.0...163.0 Del.quantity 1000 : (159.0...165.0) : 4.00 : (7.50) Spread cm3 1000 RATED SPEED 1st version Setting point: Speed rpm Rack travel in mm: 16.0 Testing: 1st rack travel in: 10.90 rpm : 1095...1110 Speed 2nd rack travel in: 4.00 rpm : 1150...1180 Speed

4th rack travel in: 1270

rom : 0.00...1.00 Speed

LOW IDLE 1

Setting point w/out bumper spring

Speed rpm : 300 Rack travel in mm : 6.0

Testing:

Speed rpm: 100
Minimum rack trave: 7.60
Speed rpm: 300
Rack travel in mm: 5.90...6.10
Rack travel in mm: 2.00
Speed rpm: 4/0 500

Speed rpm : 440...500

FUEL DELIVERY CHARACTERISTICS

1st version

Speed rpm : 500 Del.quantity cm3/ : 152.0...156.0 1000 s: (149.0...159.0)

BREAKAWAY

1st version 1mm rack travel less than

full load rack tr: 10.90

rpm : 1095...1110 Speed

STARTING FUEL DELIVERY

Speed rpm : 100 Del.quantity cm3/ : 120.0...145.0 1000 s: (116.0...149.0)

Remarks:

G17

Note remarks

Test sheet : FOR 6,6 n 1 : 26.06.91 Edition : 16.1.91 Replaces Test oil : ISO-4113

: 9 400 087 422 Combination no.

Injection pump

Pump designation : PES6P100A720RS3235 EP type number : 9 400 087 067

Governor

: RQV350...1200PA923-5 Governor design.

: 9 420 080 277 Governer no.

Customer-spec. information Customer : FORD (FNH)

Engine : 6.6 Ltr

1st version kW : 138.0 : 2400 Rated speed

TEST BENCH REQUIREMENTS

Test oil

inlet temp. °C : 38...42

Overflow valve

: 2 417 413 072

Inlet press., bar: 1.50

Overflow

quantity min. 1/h: 85...95

Test nozzle holder

: 1 688 901 101 assembly

Openina

: 207...210 pressure, bar

Orifice plate

diameter mm : 0,6

: 1 680 750 008 Test lines

Outside diameter

x Wall thickness

: 6.00X2.00X600 x Length mm

(A) Injection pump setting values Insp. values in parentheses Set equal delivery quant.

per values ____

BEGINNING OF DELIVERY

Test pressure, bar: 17...19

Prestroke mm : 3.45...3.55 : (3.40...3.60) Rack travel in mm : 9.00...12.00 Firing order : 1-5- 3- 6- 2- 4

: 0-60-120-180-240-300 Phasina

Tolerance + - ° : 0.50 (0.75)

Time to cyl. no. : 1

BASIC SETTING

1st speed rpm : 1200

Rack travel in mm: 15.80...15.90

Del.guantity cm3/: 16.3...16.5

100 s: (16.0...16.8)

cm3 : 0.5Spread

100 s: (0.9)

rpm : 350.02nd speed Rack travel in mm: 6.5...6.7

Del.quantity cm3/: 1.4...2.0 100 s: (1.2...2.2)

cm3 : 0.5Spread 100 s: (0.8)

(B) Setting of injection pump with governor

GUIDE SLEEVE TRAVEL

rpm : 1200 1st speed

: 8.90...9.10 travel mm

2nd speed rpm : 600

: 5.40...5.60 travel mm

: 450 3rd speed man

: 3.80...4.00 travel mm

4th speed : 350 rpm

2.20...2.40 travel mm

275 5th speed rpm

: 1.10...1.50 travel mm

FULL LOAD DELIV. AT FULL LOAD STOP

1st version

rpm : 1200 Speed Aneroid pressure h: 1200

Del.quantity : 100.5...168.5)

: 5.00 Spread cm31000 : (9.00) RATED SPEED 1st version Control lever position degrees: 118...126 Testing: 1st rack travel in: 14.80 rpm : 1260...1270 Speed 2nd rack travel in: 4.00 rpm : 1410...1440 Speed 4th rack travel in: 1530 Speed npm : 0.00...1.00LOW IDLE 1 Control Lever position degrees: 64...72 Testing: : 275 Speed rpm Minimum rack trave: 8.30 rpm : 350 Rack travel in mm : 6.50...6.70 CONSTANT REGULATION rpm : 390...460 Speed TORQUE CONTROL Dimension a mm :? Torque control curve - 1st version rpm : 1200 1st speed Rack travel in m: 15.80...15.90 rpm : 750 2nd speed Rack travel in m: 14.00...14.20 3rd speed rpm : 550 Rack travel in m: 13.00...13.40 Aneroid/Altitude Compensator Test 1st version Settina rpm : 1200 hPa : 1200 Speed rpm Pressure : 15.80...15.90 Rack travel mm Measurement 1/min: 1200 Speed 1st pressure hPa : -Rack travel in m: 9.70...10.10 2nd pressure hPa : 360 Rack travel in m: 11.40...11.50 3rd pressure hPa : 745 Rack travel in m: 14.20...14.60

START CUT-OUT 1/min: 290 (310) Speed FUEL DELIVERY CHARACTERISTICS 1st version Aneroid pressure h: 1200 Speed rpm : 750 Del.quantity cm3/: 163.5...169.5 1000 s: (160.5...172.5) cm3 : 8.00 Spread 1000 s: (12.0) Aneroid pressure h: rpm : 500 Speed Del.quantity cm3/: 93.0...97.0 1000 s: (91.0...99.0) BREAKAWAY 1st version 1mm rack travel less than full load rack tr: 14.80 rpm : 1260...1270 Speed STARTING FUEL DELIVERY rpm : 100 Speed Del.quantity cm3/: 140.0...180.0 1000 s: (138.0...182.0) Rack travel in mm : 13.10...13.90 LOW IDLE Speed rpm : 350 Rack travel in mm : 6.50...6.70 Del.quantity cm3/: 14.0...20.0 1000 s: (12.0...22.0) cm3 : 5.00 Spread 1000 s: (8.00) Remarks:

Note remarks

: MB 6,0 i 3 Test sheet Edition : 02.08.91 Replaces : 8.5.91 Test oil : ISO-4113

Combination no. : 9 400 087 429

Injection pump

Pump designation : PES6P120A720RS3256-1

EP type number : 9 400 087 077

Governor

Governor design. : RQV300...1300PA963

: 9 420 080 283 Governer no.

Customer-spec. information

Customer : MERCEDES-BENZ

: 0M366 LA Engine

: 156.6 1st version kW Rated speed : 2600

TEST BENCH REQUIREMENTS

Test oil

inlet temp. °C : 38...42

Overflow valve

: 1 417 413 025

Inlet press., bar: 1.50

Overflow

quantity min. 1/h: 100...120

Test nozzle holder

: 1 688 901 019 assembly

Opening 1

pressure, bar : 207...210

Orifice plate

: 0,8 diameter mm

: 1 680 750 067 Test lines

Outside diameter x Wall thickness

x Length mm : 6.00X1.50X1000

(A) Injection pump setting values Insp. values in parentheses Set equal delivery quant.

per values ____

BEGINNING OF DELIVERY

Test pressure, bar: 25...27

Prestroke mm : 4.30...4.40

: (4.25...4.45) Rack travel in mm : 9.00...12.00

: 1-5-3-6-2-4 Firing order

: 0-60-120-180-240-300 Phasing

Tolerance $+ - \circ : 0.50 (0.75)$

Time to cyl. no. : 1

BASIC SETTING

1st speed rpm: 1000

Rack travel in mm : 3.40...3.60

Del.quantity cm3/: 1.7...2.0

100 s: (1.4...2.3)

Spread cm3 : 0.2

100 s: (0.3)

2nd speed rpm : 300.0Rack travel in mm: 8.6...8.9

Del.quantity cm3/: 1.0...1.6 100 s: (0.7...1.9)

cm3 : 0.8 Spread 100 s: (1.2)

(B) Setting of injection pump with governor

GUIDE SLEEVE TRAVEL

rpm : 300 1st speed

: 1.20...1.70 travel mm rpm : 650 2nd speed

travel mm

: 3.80...4.30 rpm : 1060 3rd speed

: 5.60...6.10 travel mm

rpm : 1358 4th speed

: 8.20...8.70 travel mm

5th speed rpm : 1461

: 9.80...10.30 travel mm

GUIDE SLEEVE POSITION

Control-lever position

Degree: -1

rpm : 1350 Speed

Rack travel in mm : 15.20...17.80

FULL LOAD DELIV. AT FULL LOAD STOP

1st version rpm : 1000 Speed : 17.0...20.0 Del.quantity 1000 : (14.0...23.0) : 2.00 cm3 Spread 1000 : (3.00)RATED SPEED 1st version Control Lever position degrees: 116...124 Testing: 1st rack travel in: 11.90 Speed rpm: 1340...1350 2nd rack travel in: 4.00 Speed rpm : 1420...1450 4th rack travel in: 1550 rpm : 0.00...1.00Speed LOW IDLE 1 Control lever position degrees: 86...94 Testina: Speed man: Minimum rack trave: 10.20 : 300 Speed riom Rack travel in mm : 8.80...9.20 CONSTANT REGULATION : 300...450 Speed וחכרי Aneroid/Altitude Compensator Test 1st version Setting : 500 Speed rom hPa : -Pressure : 10.60...10.90 Rack travel mm Measurement 1/min: 500 Speed 1st pressure hPa : 300 Rack travel in m: 11.10...11.30 2nd pressure hPa : 500 Rack travel in m: 12.10...12.30 3rd pressure hPa : 1000 Rack travel in m: 12.80...13.00

1st version Aneroid pressure h: 1000 : 1300 Speed rpm Del.quantity cm3/: 157.0...159.0 1000 s: (154.0...162.0) cm3 : 8.00 Spread 1000 s: (12.0) Aneroid pressure h: 1000 : 800 Speed rpm Del.quantity cm3/: 142.0...146.0 1000 s: (139.0...149.0) cm3 : 8.00 Spread 1000 s: (12.0) Aneroid pressure h: -Speed rpm: 500
Del.quantity cm3/: 65.0...67.0
1000 s: (62.0...70.0) cm3 : 8.00 Spread 1000 s: (12.0) **BREAKAWAY** 1st version 1mm rack travel less than

full load rack tr: 11.90 Speed rpm : 1340...1350

STARTING FUEL DELIVERY

Speed rpm : 100 Del.quantity cm3/ : 100.0...120.0 1000 s: (96.0...124.0)

Remarks:

Start-of-delivery blocking at start of delivery of cylinder no. 1.

Speed

START CUT-OUT

1/min: 220 (240)

FUEL DELIVERY CHARACTERISTICS

Note remarks

: MB 6,0 i 4 : 02.08.91 : 8.5.91 Test sheet Edition Replaces : ISO-4113 Test oil

Combination no. : 9 400 087 430

Injection pump

Pump designation: PES6P120A720RS3256-1

: 9 400 087 077 EP type number

Governor

Governor design. : RQV300...1300PA963-1

: 9 420 080 284 Governer no.

Customer-spec. information

: MERCEDES-BENZ Customer

: 0M366 LA Engine

: 171.5 1st version kW : 2600 Rated speed

TEST BENCH REQUIREMENTS

Test oil

inlet temp. °C : 38...42

Overflow valve

: 1 417 413 025

Inlet press., bar: 1.50

Overflow

quantity min. 1/h: 100...120

Test nozzle holder

: 1 688 901 019 assembly

Opening |

pressure, bar : 207...210

Orifice plate

diameter mm : 0,8

Test Lines : 1 680 750 067

Outside diameter

x Wall thickness

x Length mm : 6.00X1.50X1000

(A) Injection pump setting values Insp. values in parentheses Set equal delivery quant.

per values ___

BEGINNING OF DELIVERY

Test pressure, bar: 25...27

: 4.30...4.40 Prestroke mm : (4.25...4.45)

Rack travel in mm : 9.00...12.00 Firing order : 1-5-3-6-2-4

: 0-60-120-180-240-300 Phasing

Tolerance + - ° : 0.50 (0.75)

Time to cyl. no. : 1

BASIC SETTING

rpm: 1000 1st speed

Rack travel in mm : 3.40...3.60

Del.quantity cm3/: 1.7...2.0

100 s: (1.4...2.3)

Spread cm3 : 0.2

100 s: (0.3)

2nd speed rpm : 300.0 Rack travel in mm : 8.6...8.9

Del.quantity cm3/: 1.0...1.6 100 s: (0.7...1.9)

cm3 : 0.8 Spread 100 s: (1.2)

(B) Setting of injection pump with governor

GUIDE SLEEVE TRAVEL

1st speed rpm : 300

: 1.20...1.70 travel mm

2nd speed : 650 rpm

: 3.80...4.30 travel mm

: 1060 3rd speed rpm

travel mm : 5.60...6.10

: 1358 4th speed rpm

: 8.20...8.70 travel mm

5th speed : 1461 rpm

travel mm : 9.80...10.30

GUIDE SLEEVE POSITION

Control-lever position Degree: -1

rpm : 1350

Rack travel in mm : 15.20...17.80

FULL LOAD DELIV. AT FULL LOAD STOP

1st version rpm : 1000Speed : 17.0...20.0 Del.quantity 1000 : (14.0...23.0) : 2.00 Spread cm3 1000 : (3.00) RATED SPEED 1st version Control lever position degrees: 117...125 Testing: 1st rack travel in: 12.90 rpm : 1340...1350 Speed 2nd rack travel in: 4.00 rpm : 1445...1475 Speed 4th rack travel in: 1550 rpm : 0.00...1.00 Speed LOW IDLE 1 Control lever position degrees: 86...94 Testing: Speed : 200 rpm Minimum rack trave: 10.20 : 300 rpm Rack travel in mm : 8.80...9.20 CONSTANT REGULATION : 300...450 Speed rpm Aneroid/Altitude Compensator Test 1st version Setting : 500 Speed rpm hPa : Pressure : 10.60...10.90 Rack travel mm Measurement 1/min: 500 Speed 1st pressure hPa : 300 Rack travel in m: 11.10...11.30 2nd pressure hPa : 700 Rack travel in m: 13.00...13.20 3rd pressure hPa : 1000 Rack travel in m: 13.70...13.90 START CUT-OUT 1/min : 220 (240) Speed

FUEL DELIVERY CHARACTERISTICS

1st version Aneroid pressure h: 1000 Speed rpm : 1300 Del.quantity cm3/: 180.0...182.0 1000 s: (177.0...185.0) cm3 : 8.00 1000 s: (12.0) Spread Aneroid pressure h: 1000 Speed : 800 rpm Del.quantity cm3/: 164.0...168.0 1000 s: (161.0...171.0) cm3 : 8.00 Spread 1000 s: (12.0) Aneroid pressure h: -: 500 Speed rpm Del.quantity cm3/: 65.0...67.0 1000 s: (62.0...70.0) cm3 : 8.00 Spread 1000 s: (12.0) **BREAKAWAY**

1st version 1mm rack travel less than

full load rack tr: 12.90 Speed rpm : 1340...1350

STARTING FUEL DELIVERY

Speed rpm : 100 Del.quantity cm3/ : 100.0...120.0 1000 s: (96.0...124.0)

Remarks:

Start-of-delivery blocking at start of delivery of cylinder no. 1.

Note remarks

: MB 6,0 i 2 : 02,08.91 Test sheet Edition Replaces : 8.5.91 Test oil : ISO-4113

: 9 400 087 431 Combination no.

Injection pump

Pump designation : PES6P120A720RS3256

: 9 400 087 071 EP type number

Governor

Governor design. : RQV300...1300PA963-2

: 9 420 080 285 Governer no.

Customer-spec. information

: MERCEDES-BENZ Customer

Engine : 0M366 LA

: 141.7 1st version kW Rated speed : 2600

TEST BENCH REQUIREMENTS

Test oil

inlet temp. °C : 38...42

Overflow valve

: 1 417 413 025

Inlet press., bar: 1.50

Overflow

quantity min. 1/h: 100...120

Test nozzle holder

: 1 688 901 019 assembly

Openina .

: 207...210 pressure, bar

Orifice plate

diameter mm : 0,8

Test lines : 1 680 750 067

Outside diameter

x Wall thickness

: 6.00X1.50X1000 x Length mm

(A) Injection pump setting values Insp. values in parentheses Set equal delivery quant.

per values

BEGINNING OF DELIVERY

Test pressure, bar: 25...27

: 4.30...4.40 : (4.25...4.45) Prestroke mm

Rack travel in mm : 9.00...12.00

: 1-5-3-6-2-4 Firing order

: 0-60-120-180-240-300 Phasing

Tolerance + - ° : 0.50 (0.75)

Time to cyl. no. : 1

BASIC SETTING

1st speed rom: 1000

Rack travel in mm : 3.40...3.60

Del.guantity cm3/: 1.7...2.0

100 s: (1.4...2.3)

cm3 : 0.2Spread

100 s: (0.3)

2nd speed rpm : 300.0 Rack travel in mm : 8.6...8.9

Del.quantity cm3/: 1.0...1.6

100 s: (0.7...1.9)

cm3 : 0.8

100 s: (1.2)

(B) Setting of injection pump

with governor

GUIDE SLEEVE TRAVEL

Spread

rpm : 300 1st speed

: 1.20...1.70 travel mm

2nd speed rpm : 650

: 3.80...4.30 travel mm

3rd speed rpm : 1060

travel mm : 5.60...6.10

: 1358 4th speed rpm

: 8.20...8.70 travel mm

5th speed : 1461 rpm

travel mm : 9.80...10.30

GUIDE SLEEVE POSITION

Control-lever position

Degree: -1

rpm : 1350 Speed

Rack travel in mm : 15.20...17.80

FULL LOAD DELIV. AT FULL LOAD STOP

1st version Speed rpm : 1000Del.quantity : 17.0...20.0 1000 : (14.0...23.0) cm3Spread : 2.00 1000 : (3.00) RATED SPEED 1st version Control lever position degrees: 115...123 Testing: 1st rack travel in: 10.60 rpm : 1340...1350 Speed 2nd rack travel in: 4.00 : 1410...1440 Speed rom 4th rack travel in: 1550 rom : 0.00...1.00Speed LOW IDLE 1 Control lever position degrees: 86...94 Testing: : 200 Speed rpm Minimum rack trave: 10.20 : 300 rpm Rack travel in mm : 8.80...9.20 CONSTANT REGULATION rpm : 300...450 Speed Aneroid/Altitude Compensator Test 1st version Settina : 500 Speed nom Pressure hPa : -: 10.60...10.90 Rack travel mm Measurement 1/min: 500 Speed 1st pressure hPa : 300 Rack travel in m: 11.10...11.30 2nd pressure hPa : 700 Rack travel in m: 11.80...12.00 START CUT-OUT 1/min: 220 (240) Speed FUEL DELIVERY CHARACTERISTICS 1st version

Aneroid pressure h: 1000 Speed rpm : 1300 Del.quantity cm3/: 134.0...136.0 1000 s: (131.0...139.0) cm3 : 8.00 Spread 1000 s: (12.0) Aneroid pressure h: 1000 Speed rpm : 800 Del.quantity cm3/ : 114.0...118.0 1000 s: (111.0...121.0) cm3 : 8.00 Spread 1000 s: (12.0) Aneroid pressure h: -Speed rpm Del.quantity cm3/: 65.0...67.0 1000 s: (62.0...70.0) cm3 : 8.00 Spread 1000 s: (12.0)

BREAKAWAY

1st version 1mm rack travel less than

full load rack tr: 10.60 Speed rpm : 1340...1350

STARTING FUEL DELIVERY

Speed rpm : 100 Del.quantity cm3/ : 90.0...110.0 1000 s: (86.0...114.0)

Remarks:

Start-of-delivery blocking at start of delivery of cylinder no. 1.

G25

Note remarks

: VOL 12,2 h1 Test sheet : 02.08.91 Edition Replaces : 24.10.90 : ISO-4113 Test oil

: 9 400 087 434 Combination no.

Injection pump

Pump designation : PE6P120A320RS3178 : 0 411 826 752 EP type number

Governor

Governor design. : RQV250...1025PA921-2

: D 421 813 785 Governer no.

Customer-spec. information Customer : VOLVO

Engine : TD 122 FS

: 287.0 1st version kW : 2050 Rated speed

TEST BENCH REQUIREMENTS

Test oil

inlet temp. °C : 38...42

Overflow valve

: 1 417 413 010

Inlet press., bar: 1.50

Test nozzle holder

: 1 688 901 019 assembly

Opening

: 207...210 pressure, bar

Orifice plate

diameter mm : 0,8

: 1 680 750 067 Test Lines

Outside diameter x Wall thickness

: 6.00X1.50X1000 x Length mm

(A) Injection pump setting values Insp. values in parentheses Set equal delivery quant.

per values

BEGINNING OF DELIVERY

Test pressure, bar: 25...27

: 3.60...3.70 : (3.55...3.75) Prestroke mm

Rack travel in mm : 9.00...12.00 : 1-5-3-6-2-4 Firing order

: 0-60-120-180-240-300 Phasing

Tolerance + - * : 0.50 (0.75)

Time to cyl. no. : 1

BASIC SETTING

1st speed rpm: 700

Rack travel in mm : 14.00...14.10

Del.guantity cm3/: 25.3...25.5

100 s: (25.0...25.8)

cm3 : 0.5Spread

100 s: (0.9)

2nd speed rpm : 250.0 Rack travel in mm: 4.8...5.1 Del.quantity cm3/: 1.7...2.2 100 s: (1.5...2.5)

cm3 : 0.5 Spread 100 s: (0.7)

(B) Setting of injection pump with governor

GUIDE SLEEVE TRAVEL

rpm : 250 1st speed

: 1.10...1.30 travel mm

: 500 2nd speed rpm

: 4.10...4.90 travel mm

: 700 3rd speed rpm

: 6.30...6.70 travel mm

4th speed : 900 rom

: 6.30...6.70 travel mm

: 1025 5th speed non

: 7.30...7.80 travel mm

GUIDE SLEEVE POSITION Control-lever position

Degree: -1

rpm : 1100 Speed

Rack travel in mm : 15.20...17.80

FULL LOAD DELIV. AT FULL LOAD STOP

1st version

Speed rpm : 700 Aneroid pressure h: 1200 Del.quantity : 253.0...258.0)

cm3 : 5.00 1000 : (9.00) Spread

RATED SPEED

1st version Control Lever

position degrees: 116...124

Testing:

1st rack travel in: 13.00 Speed rpm : 1055...1065 2nd rack travel in: 4.00

rpm : 1140...1170 Speed

4th rack travel in: 1250

rpm : 0.00...1.00Speed

LOW IDLE 1

Control lever

position degrees: 59...67

Testing:

Speed : 100 Libu Minimum rack trave: 6.40 : 250 Speed Lbw

Rack travel in mm : 4.80...5.10

CONSTANT REGULATION

rpm : 250...400 Speed

Aneroid/Altitude Compensator Test

1st version

Setting

Speed : 500 mon hPa : 1200 Pressure

: 14.00...14.10 Rack travel mm

Measurement

1/min: 500 Speed

1st pressure hPa : -

Rack travel in m: 10.30...10.50

2nd pressure hPa : 90

Rack travel in m: 10.50...10.60

3rd pressure hPa : 760

Rack travel in m: 13.50...13.70

FUEL DELIVERY CHARACTERISTICS

1st version

Aneroid pressure h: -

rpm : 700 Speed

Del.quantity cm3/: 163.0...165.0 1000 s: (160.0...168.0)

BREAKAWAY

1st version 1mm rack travel less than

full load rack tr: 13.00

rpm : 1055...1065 Speed

STARTING FUEL DELIVERY

Speed rpm : 100 Del.quantity cm3/ : 270.0...310.0 1000 s: (266.0...314.0)

Rack travel in mm : 20.00...21.00

LOW IDLE

rpm : 250 Speed

Rack travel in mm : 4.80...5.10 Del.quantity cm3/: 17.5...22.5 1000 s: (15.0...25.0) Spread cm3 : 5.00

1000 s: (7.00)

Remarks:

Delivery-valve spring pre-tension = 2.40...2.60 mm.

Permissible alteration from 2.20...2.90

Start-of-delivery setting with ROBO

diaphragm.

Note remarks

Test sheet : VOL 10,0q15 Edition : 02.08.91 : 24.10.90 Replaces : ISO-4113 Test oil

Combination no. : 9 400 087 437

Injection pump

Pump designation : PE6P110A320RS3108Y

EP type number : 0 411 816 729

Governor

Governor design. : RQV250...1100PA589-3 Governor no. : 9 420 080 288

Customer-spec. information Customer : VOLVO

: THD 100 EC Engine

: 180.0 1st version kW : 2200 Rated speed

TEST BENCH REQUIREMENTS

Test oil

inlet temp. °C : 38...42

Overflow valve

: 1 417 413 025

Inlet press., bar: 1.50

Test nozzle holder

: 0 681 343 009 assembly

Openina |

: 172...175 pressure, bar

Test lines : 1 680 750 015

Outside diameter x Wall thickness

: 6.00x1.50x600 x Length mm

(A) Injection pump setting values Insp. values in parentheses Set equal delivery quant. per values

BEGINNING OF DELIVERY Test pressure, bar: 25...27

Prestroke mm : 3.00...3.10 : (2.95...3.15)

Rack travel in mm : 9.00...12.00

: 1-5-3-6-2-4 Firing order

: 0-60-120-180-240-300 Phasing

Tolerance + - ° : 0.50 (0.75)

Time to cyl. no. : 1

BASIC SETTING

rom: 700 1st speed

Rack travel in mm : 11.10...11.20

Del.guantity cm3/: 13.8...14.0

100 s: (13.5...14.3)

cm3 : 0.4Spread

100 s: (0.7)

2nd speed rpm : 250.0 Rack travel in mm : 5.2...5.4 Del.quantity cm3/ : 3.0...3.4

100 s: (2.7...3.6)

Spread cm3 : 0.3100 s: (0.6)

(B) Setting of injection pump with governor

GUIDE SLEEVE TRAVEL

rpm : 250 1st speed travel mm

: 1.10...1.30 rpm : 500 2nd speed

: 4.10...4.90 travel mm rpm : 700 3rd speed

: 6.30...6.70 : 950 travel mm

4th speed rpm

: 6.30...6.70 travel mm

rpm : 1100 5th speed

: 7.00...7.50 travel mm

GUIDE SLEEVE POSITION Control-lever position

Degree: -1 rpm : 1175

Rack travel in mm : 15.20...17.80

FULL LOAD DELIV. AT FULL LOAD STOP

1st version

Speed rpm : 700

Aneroid pressure h: 900

1000 : (135.0...140.0) Del.quantity

cm3 : 4.00 Spread

1000 : (7.50)

RATED SPEED

1st version Control lever

position degrees: 61...69

Testing:

1st rack travel in: 10.10

rpm : 1160...1170 Speed

2nd rack travel in: 4.00

rpm : 1225...1255 Speed

4th rack travel in: 1350

rpm : 0.00...1.00 Speed

LOW IDLE 1

Control Lever

position degrees: 8...16

Testina:

rpm : 100 Speed Minimum rack trave: 6.70

Speed rpm : 250 Rack travel in mm : 5.20...5.40

CONSTANT REGULATION

rpm : 250...425 Speed

Aneroid/Altitude Compensator Test

1st version

Setting

Speed : 500 rpm hPa : 900 Pressure

: 11.10...11.20 Rack travel mm

Measurement

1/min: 500 Speed

1st pressure hPa : -

Rack travel in m: 9.60...9.80

2nd pressure hPa : 275

Rack travel in m: 9.90...10.00

3rd pressure hPa : 400

Rack travel in m: 10.70...10.90

FUEL DELIVERY CHARACTERISTICS

1st version

Aneroid pressure h: -

rpm : 700 Speed

Del.quantity cm3/: 105.5...108.5 1000 s: (103.0...111.0)

BREAKAWAY

1st version

1mm rack travel less than

full load rack tr: 10.10

rpm : 1160...1170 Speed

STARTING FUEL DELIVERY

Speed rpm : 100 Del.quantity cm3/: 170.0...200.0

1000 s: (166.0...204.0)

Rack travel in mm : 20.00...21.00

LOW IDLE

Speed rpm : 250 Rack travel in mm : 5.20...5.40 Del.quantity cm3/: 30.0...34.0

1000 s: (27.5...36.5)

cm3 : 3.00 1000 s: (6.00) Spread

Remarks:

Delivery-valve spring pre-tension = 2.40...2.60 mm.

Permissible alteration from 2.20...2.90

APPLICATION

Omnibus

Note remarks

: MB 6,0 i 5 : 02.08.91 Test sheet **Fdition** Replaces : 8.5.91 : ISO-4113 Test oil

Combination no. : 9 400 087 450

Injection pump

Pump designation : PES6P120A720RS3256

: 9 400 087 071 EP type number

Governor

Governor design. : RQV300...1300PA978

: 9 420 080 296 Governer no.

Customer-spec. information

: MERCEDES-BENZ Customer

: 0M366 LA Engine

: 126.8 1st version kW Rated speed : 2600

TEST BENCH REQUIREMENTS

Test oil

inlet temp. °C : 38...42

Overflow valve

: 1 417 413 025

Inlet press., bar: 1.50

Overflow

quantity min. 1/h: 100...120

Test nozzle holder

: 1 688 901 019 assembly

Opening

: 207...210 pressure, bar

Orifice plate

diameter mm : 0,8

Test lines : 1 680 750 067

Outside diameter x Wall thickness

: 6.00x1.50x1000 x Length mm

(A) Injection pump setting values Insp. values in parentheses Set equal delivery quant.

per values ____

BEGINNING OF DELIVERY

Test pressure, bar: 25...27

: 4.30...4.40 Prestroke mm

: (4.25...4.45)

Rack travel in mm : 9.00...12.00 Firing order : 1-5-3-6-2-4

Phasina : 0-60-120-180-240-300

: 0.50 (0.75) Tolerance + - °

Time to cyl. no. : 1

BASIC SETTING

rpm: 1000 1st speed

Rack travel in mm : 3.40...3.60

Del.quantity cm3/: 1.7...2.0

100 s: (1.4...2.3)

cm3 : 0.2Spread

100 s: (0.3)

rpm : 300.0 2nd speed Rack travel in mm: 8.6...8.9

Del.guantity cm3/: 1.0...1.6 100 s: (0.7...1.9)

Spread cm3 : 0.8

100 s: (1.2)

(B) Setting of injection pump with governor

GUIDE SLEEVE TRAVEL

1st speed rpm :

1.20...1.70 travel mm

: 650 2nd speed rom

: 3.80...4.30 : 1060 travel mm

3rd speed rpm :

: 5.60...6.10 travel mm

: 1358 4th speed rpm

: 8.20...8.70 travel mm : 1461

5th speed rpm : 9.80...10.30 travel mm

GUIDE SLEEVE POSITION Control-lever position

Degree: -1

rpm : 1350 Speed

Rack travel in mm : 15.20...17.80

FULL LOAD DELIV. AT FULL LOAD STOP

1st version rpm : 1000 Speed Del.quantity : 17.0...20.0 1000 : (14.0...23.0) : 2.00 Spread cm3 1000 : (3.00)RATED SPEED 1st version Control lever position degrees: 114...122 Testing: 1st rack travel in: 10.80 rpm : 1340...1350 Speed 2nd rack travel in: 4.00 : 1410...1440 Speed rom 4th rack travel in: 1550 rpm : 0.00...1.00 Speed LOW IDLE 1 Control lever position degrees: 86...94 Testing: Speed שמיז : 200 Minimum rack trave: 10.20 Speed : 300 rpm Rack travel in mm : 8.80...9.20 CONSTANT REGULATION : 300...450 Speed rpm Aneroid/Altitude Compensator Test 1st version Setting : 500 Speed rpm Pressure hPa : -: 10.40...10.60 Rack travel mm Measurement 1/min: 500 Speed 1st pressure hPa : 300 Rack travel in m: 10.90...11.10 2nd pressure hPa : 700 Rack travel in m: 11.60...11.80 START CUT-OUT 1/min : 220 (240) Speed FUEL DELIVERY CHARACTERISTICS 1st version

Aneroid pressure h: 1000 : 1300 Speed rpm Del.quantity cm3/: 138.0...140.0 1000 s: (135.0...143.0) cm3 : 8.00 Spread 1000 s: (12.0) Aneroid pressure h: 1000 Speed rpm : 800 Del.quantity cm3/: 118.0...122.0 1000 s: (115.0...125.0) cm3 : 8.00 Spread 1000 s: (12.0) Aneroid pressure h: -Speed rpm : 500 Del.quantity cm3/ : 61.0...63.0 1000 s: (58.0...66.0) cm3 : 8.00Spread 1000 s: (12.0)

BREAKAWAY

1st version 1mm rack travel less than

full load rack tr: 10.80 Speed rpm : 1340...1350

STARTING FUEL DELIVERY

Speed rpm : 100 Del.quantity cm3/ : 90.0...110.0 1000 s: (86.0...114.0)

Remarks:

Start-of-delivery blocking at start of delivery of cylinder no. 1.

H03

BOSCH INJ. PUMP TEST SPECIFICATIONS Note remarks : FOR 7,8 p : 26.06.91 Test sheet Edition : 16.1.91 Replaces Test oil : ISO-4113 Combination no. : 9 400 087 451 Injection pump Pump designation : PES6P110A720RS3272 : 9 400 087 076 EP type number Governor Governor design. : RQV350...1200PA863-1 : 9 420 080 300 Governer no. Customer-spec. information Customer : FORD (FNH) Engine : 7.8 L TC 1st version kW : 206.0 : 2400 Rated speed TEST BENCH REQUIREMENTS Test oil inlet temp. °C : 38...42 Overflow valve : 9 401 087 403 Inlet press., bar: 1.50 Test nozzle holder : 1 688 901 017 assembly Opening : 207...210 pressure, bar Orifice plate diameter mm : 0,6 Test lines : 1 680 750 015 Outside diameter x Wall thickness x Length mm : 6.00X1.50X600 (A) Injection pump setting values

Insp. values in parentheses Set equal delivery quant.

per values

Test pressure, bar: 25...27

BEGINNING OF DELIVERY

: 4.65...4.75 Prestroke mm : (4.60...4.80) Rack travel in mm : 9.00...12.00 Firing order : 1-5-3-6-2-4 : 0-60-120-180-240-300 Phasing Tolerance + - ° : 0.50 (0.75) Time to cyl. no. : 1 BASIC SETTING rpm: 1200 1st speed Rack travel in mm : 13.50...13.60 Del.quantity cm3/: 17.4...17.6 100 s: (17.2...17.8) cm3 : 0.5Spread 100 s: (0.9) rpm : 350.02nd speed Rack travel in mm: 6.1...6.3 Del.guantity cm3/: 1.4...1.8 100 s; (1.1...2.0) cm3 : 0.3 Spread 100 s: (0.5) (B) Setting of injection pump with governor GUIDE SLEEVE TRAVEL rpm : 1360 1st speed : 8.40...8.50 travel mm 2nd speed rpm : 1000 : 5.50...5.90 travel mm : 800 3rd speed rom travel mm : 4.40...4.80 500 4th speed rpm 2.60...3.00 travel mm 5th speed mar : 0.90...1.30 travel mm GUIDE SLEEVE POSITION Control-lever position Degree: -1 rpm : 1505 Speed Rack travel in mm : 6.70...9.30 FULL LOAD DELIV. AT FULL LOAD STOP 1st version

rpm : 1200

Aneroid pressure h: 1200

Speed

: 174.5...176.5 Del.quantity 1000 : (172.5...178.5) : 5.00 cm3 Spread 1000 : (9.00) RATED SPEED 1st version Control Lever position degrees: 96...104 Testing: 1st rack travel in: 12.50 rpm : 1240...1250 Speed 2nd rack travel in: 4.00 rpm : 1370...1400 Speed 4th rack travel in: 1500 rpm : 0.00...1.00Speed LOW IDLE 1 Control lever position degrees: 65...73 Testing: Speed rpm : 100 Minimum rack trave: 9.00 rpm Rack travel in mm : 6.10...6.30 CONSTANT REGULATION rpm : 390...460 Speed TORQUE CONTROL Dimension a mm : 0.50 Torque control curve - 1st version rpm : 1200 1st speed Rack travel in m: 13.50...13.60 rpm : 800 2nd speed Rack travel in m: 14.00...14.10 3rd speed rpm : 850 Rack travel in m: 13.90...14.10 4th speed rpm : 1030 Rack travel in m: 13.50...13.60 Aneroid/Altitude Compensator Test 1st version Setting Speed : 500 rpm hPa : 1200 Pressure : 14.00...14.10 Rack travel mm Measurement 1/min: 500

Rack travel in m: 13.50...13.60 3rd pressure hPa : 540 Rack travel in m: 11.80...12.20 START CUT-OUT 1/min : 270 (290) Speed FUEL DELIVERY CHARACTERISTICS 1st version Aneroid pressure h: 1200 rpm : 800 Speed Del.quantity cm3/: 160.0...164.0 1000 s: (158.0...166.0) Aneroid pressure h: rpm : 500 Speed Del.quantity cm3/: 92.0...94.0 1000 s: (89.5...96.5) BREAKAWAY 1st version 1mm rack travel less @ full load rack tr: 12.50 rpm : 1240...1250 Speed STARTING FUEL DELIVERY Speed rpm : 100 Del.quantity cm3/ : 140.0...160.0 1000 s: (135.0...165.0) Rack travel in mm : 19.00...21.00 LOW IDLE rpm : 350 Speed Rack travel in mm : 6.10...6.30 Del.quantity cm3/: 14.0...18.0 1000 s: (11.5...20.5) Spread cm3: 3.50 1000 s: (5.50) Remarks: Set shutoff stop 1.5...2.0 mm before shutoff.

Speed

1st pressure hPa : -

2nd pressure hPa : 860

Rack travel in m: 11.00...11.20

Note remarks

Test sheet : FOR 7,8 q Edition : 02.08.91

Replaces

: ISO-4113 Test oil

Combination no. : 9 400 087 455

Injection pump

: PES6P110A720RS3285 Pump designation : 9 400 087 078 EP type number

Governor Governor design. : RQV350...1200PA863

-11

Governer no. : 9 420 080 310

Customer—spec. information

Customer : FORD (FNH)

Engine : 7.8 L TC

: 179.0 1st version kW Rated speed : 2400

TEST BENCH REQUIREMENTS

Test oil

inlet temp. °C : 38...42

Overflow valve

: 2 417 413 057

Inlet press., bar: 1.50

Test nozzle holder

: 1 688 901 017 assembly

Opening

: 207...210 pressure, bar

Orifice plate

diameter mm : 0.6

Test Lines : 1 680 750 015

Outside diameter

x Wall thickness

x Length mm : 6.00x1.50x600

(A) Injection pump setting values Insp. values in parentheses Set equal delivery quant.

per values

BEGINNING OF DELIVERY Test pressure, bar: 25...27

H06

: 4.25...4.35 : (4.20...4.40) Prestroke mm

Rack travel in mm : 9.00...12.00

: 1-5-3-6-2-4 Firing order

: 0-60-120-180-240-300 Phasing

Tolerance + - " : 0.50 (0.75)

Time to cyl. no. : 1

BASIC SETTING

rpm: 1200 1st speed

Rack travel in mm : 14.50...14.60

Del.quantity cm3/: 14.9...15.1

100 s: (14.7...15.3)

cm3 : 0.5Spread

100 s: (0.9)

rpm : 350.0 2nd speed Rack travel in mm: 8.0...8.2 Del.quantity cm3/: 2.4...2.8 100 s: (2.1...3.0)

cm3 : 0.3Spread 100 s: (0.5)

(B) Setting of injection pump with governor

GUIDE SLEEVE TRAVEL

rpm : 13601st speed travel mm

: 8.40...8.50 rpm : 1000 2nd speed

travel mm 5.50...5.90 3rd speed : 800

rpm travel mm : 4.40...4.80

4th speed 500 rom

2.60...3.00 travel mm

rpm : 300 5th speed

: 0.90...1.30 travel mm

GUIDE SLEEVE POSITION Control-Lever position

Dearee: -1 rpm : 1440

Speed Rack travel in mm : 6.70...9.30

FULL LOAD DELIV. AT FULL LOAD STOP

1st version

Speed rpm : 1200

Aneroid pressure h: 700 Del.quantity : 149.3....153.5) : 5.00 Spread ϵ mo 1000 : (9.00) RATED SPEED 1st version Control lever position degrees: 44...52 Testing: 1st rack travel in: 13.50 rpm : 1260...1270 Speed 2nd rack travel in: 4.00 Speed rpm : 1410...1440 4th rack travel in: 1520 Speed rpm : 0.00...1.00 LOW IDLE 1 Control lever position degrees: 13...21 Testing: rpm : 100 Speed Minimum rack trave: 12.00 Speed rpm : 350 Rack travel in mm : 8.00...8.20 CONSTANT REGULATION rpm : 390...460 Speed TORQUE CONTROL Dimension a mm : 0.50 Torque control curve - 1st version
1st speed rpm : 1200
Rack travel in m: 14.50...14.60
2nd speed rpm : 750
Rack travel in m: 15.00...15.10
3rd speed rpm : 910
Rack travel in m: 14.90...15.10
4th speed rpm : 1040
Rack travel in m: 14.50 14.60 Rack travel in m: 14.50...14.60 Aneroid/Altitude Compensator Test 1st version Setting : 500 Speed rpm Pressure hPa : 700 : 15.00...15.10 Rack travel mm Measurement

1/min: 500

Rack travel in m: 12.00...12.20

1st pressure hPa : -

2nd pressure hPa : 430 Rack travel in m: 13.30...13.40 3rd pressure hPa : 532 Rack travel in m: 14.30...14.50 START CUT-OUT 1/min: 290 (310) Speed FUEL DELIVERY CHARACTERISTICS 1st version Aneroid pressure h: 700 : 850 Speed rpm Del.quantity cm3/: 134.5...138.5 1000 s: (132.5...140.5) Aneroid pressure h: -Speed rpm : 500 Del.quantity cm3/: 72.0...74.0 1000 s: (70.0...76.0) **BREAKAWAY** 1st version 1mm rack travel less than full load rack tr: 13.50 rpm : 1260...1270 Speed STARTING FUEL DELIVERY Speed rpm : 100 Del.quantity cm3/ : 140.0...160.0 1000 s: (-) Rack travel in mm : 20.00...21.00 LOW IDLE Speed rpm : 350
Rack travel in mm : 8.00...8.20
Del.quantity cm3/: 24.0...28.0
1000 s: (21.5...30.5)
Spread cm3 : 3.50
1000 s: (5.50)

Remarks:

Set shutoff stop 1.5...2.0 mm before shutoff.

H07

Speed

Note remarks

Test sheet : CUM 8,3 a62 : 03.06.91 Edition Replaces : 13.5.91 Test oil : ISO-4113

: 9 400 230 111 Combination no.

Injection pump

Pump designation : PES6A100D320/3RS2691

: 9 410 230 030 EP type number

Governor

: RSV450...1100A0c2190 Governor design.

-40R

: 0 420 233 246 Governer no.

Customer-spec. information Customer : C.D.C.

: 6 CT 830 Engine

: 134.2 1st version kW : 2200 Rated speed

TEST BENCH REQUIREMENTS

Test oil

inlet temp. °C : 38...42

Overflow valve

: 1 417 413 047

Inlet press., bar: 1.50

Test nozzle holder

: 1 688 901 101 assembly

Openina .

: 207...210 pressure, bar

Orifice plate

: 0.6 diameter mm

: 1 680 750 014 Test Lines

Outside diameter

x Wall thickness

: 6.00x2.00x600 x Length mm

(A) Injection pump setting values Insp. values in parentheses Set equal delivery quant.

per values ____

BEGINNING OF DELIVERY

Test pressure, bar: 25...27

: 2.80...2.90 : (2.75...2.95) Prestroke mm

Rack travel in mm : 9.00...12.00

: 1-5- 3- 6- 2- 4 Firing order

: 0-60-120-180-240-300 Phasing

Phasing Tolerance + - °

: 0.50 (0.75)

Time to cyl. no. : 1

BASIC SETTING

1st speed rpm: 1100

Rack travel in mm : 11.20...11.30

Del.quantity cm3/: 10.3...10.5

100 s: (10.1...10.7)

Spread cm3 : 0.4

100 s: (0.6)

2nd speed rpm : 450.0 Rack travel in mm : 5.7...5.9 Del.quantity cm3/ : 1.6...2.0

100 s: (1.4...2.2)

Spread cm3 : 0.6

100 s: (0.8)

GUIDE SLEEVE POSITION

Control-lever position Degree: -3

rpm : 800 Speed

Rack travel in mm : 0.30...0.70

Governor spring pre-tension

Click setting x : 5.75

FULL LOAD DELIV. AT FULL LOAD STOP

1st version

Speed rpm : 1100

: 103.5...105.5 Del.quantity

1000 : (101.5...107.5)

Spread cm3 : 4.00

1000 : (6.50)

RATED SPEED

1st version

Control lever

position degrees: 49...57

80H

Testing:

1st rack travel in: 10.20 Speed rpm : 1140...1150 2nd rack travel in: 4.00

rpm : 1210...1240 Speed

3rd rack travel in: 4.00

Speed rpm : 1215...1245

4th rack travel in: 1300

rpm : 0.30...1.40 Speed

LOW IDLE 1

Control lever

position degrees: 31...39

Setting point w/out bumper spring

Speed rpm : 450 Rack travel in mm : 5.3

Testing:

Speed rpm : 100 Minimum rack trave: 19.00

Speed rpm : 450

Rack travel in mm : 5.70...5.90

TORQUE CONTROL

Torque control curve - 1st version

1st speed rpm : 1100

Rack travel in m: 11.20...11.30

2nd speed rpm : 750

Rack travel in m: 12.00...12.20

FUEL DELIVERY CHARACTERISTICS

1st version

Speed rpm : 750 Del.quantity cm3/: 111.5...115.5 1000 s: (109.5...117.5)

BREAKAWAY

1st version

1mm rack travel less than

full load rack tr: 10.20 Speed rpm : 1140...1150

Speed

STARTING FUEL DELIVERY

LOW IDLE

rpm : 450 Speed

Rack travel in mm : 5.70...5.90

H09

Del.quantity cm3/: 16.5...20.5 1000 s: (14.5...22.5)

cm3 : 6.00 Spread

1000 s: (8.00)

Remarks:

Adjustment without torque-control spring retainer with 0,5 mm less control-rod travel. Increase in full-load delivery with torque-control spring retainer.

Start-of-delivery mark 11° cam angle after start of delivery cyl. 1

Adjust stop lever to 0.5...1.0 mm before stop.

Note remarks

Test sheet : KHD 15,8 c2 : 23.08.91 Edition : 21.6.91 Replaces Test oil : ISO-4113

Combination no. : 0 400 649 188

Injection pump

Pump designation : PE10A95D610/4LS2452

EP type number : 0 410 699 998

Governor

Governor design. : RQV30C...1150AB988DL Governor no. : 0 420 214 229

Customer-spec. information Customer : KHD

Engine : F10L413F

: 216.0 1st version kW : 2300 Rated speed

TEST BENCH REQUIREMENTS

Test oil

: 38...42 inlet temp. °C

Overflow valve

: 1 417 413 000

Inlet press., bar: 1.50

Test nozzle holder

: 0 681 343 009 assembly

Opening

: 172...175 pressure, bar

Test lines : 1 680 750 014

Outside diameter x Wall thickness

: 6.00x2.00x600 x Length mm

(A) Injection pump setting values Insp. values in parentheses Set equal delivery quant. per values

BEGINNING OF DELIVERY

Test pressure, bar: 25...27

: 2.00...2.10 Prestroke mm : (1.95...2.15)

Rack travel in mm : 9.00...12.00

H10

: 1-10- 9- 4- 3- 6-5- 8- 7- 2 Firing order

: 0-27-72-99-144-171-216-243-288-315 : 0.50 (0.75) Phasing

Tolerance + - °

Time to cyl. no. : 1

BASIC SETTING

1st speed rpm : 1150

Rack travel in mm : 10.00...10.10

Del.quantity cm3/: 9.1...9.2

100 s: (8.9...9.4)

Spread cm3 : 0.3

100 s: (0.6)

rpm : 300.02nd speed

Rack travel in mm: 7.0...7.2 Del.quantity cm3/: 1.7...2.3

100 s: (1.4...2.5)

cm3 : 0.3 Spread 100 s: (0.5)

(B) Setting of injection pump with governor

GUIDE SLEEVE TRAVEL

rpm : 300 1st speed

: 1.00...1.50 travel mm

rpm : 325 2nd speed

: 1.50...2.00 travel mm

3rd speed rpm : 760

: 4.80...5.30 travel mm

rpm : 1200 4th speed

: 8,60...9.10 travel mm

: 1420 5th speed rpm

: 11.00...12.00 travel mm

GUIDE SLEEVE POSITION Control-lever position

Degree: -1

rpm : 1150

Rack travel in mm : 15.20...17.80

FULL LOAD DELIV. AT FULL LOAD STOP

1st version

rpm : 1150 Speed

: 91.5...92.5 Del.quantity

1000 : (89.5...94.5)

cm3 : 3.00 1000 : (6.00) Spread RATED SPEED 1st version Control Lever position degrees: 116...124 Testing: 1st rack travel in: 9.00 Speed rpm : 1190...1200 2nd rack travel in: 4.00 Speed rpm : 1245...1275 4th rack travel in: 1350 Speed rpm : 0.00...1.00 LOW IDLE 1 Control lever position degrees: 84...92 Testing: Speed rpm : 200 Minimum rack trave: 10.70 Speed rpm : 300 Rack travel in mm : 6.40...6.60 rpm : 750 Speed Maximum rack trave: 1.00 CONSTANT REGULATION rpm : 320...390 Speed TORQUE CONTROL Dimension a mm : 0.50 Torque control curve – 1st version 1st speed rpm : 1150 Rack travel in m: 10.00...10.10 2nd speed rpm : 975 Rack travel in m: 10.20...10.40 3rd speed rpm : 700 Rack travel in m: 10.50...10.60 START CUT-OUT 1/min: 220 (240) Speed FUEL DELIVERY CHARACTERISTICS 1st version rpm : 700 Speed Del.quantity cm3/: 90.0...93.0 1000 s: (87.5...95.5) RACK STOP ADJUSTMENT

rpm : 600

Speed

H11

BREAKAWAY

1st version 1mm rack travel less than full load rack tr: 9.00 Speed rpm : 1190...1200 STARTING FUEL DELIVERY Speed rpm : 100 Rack travel in mm : 19.50...21.00 LOW IDLE Speed rpm : 300 Rack travel in mm : 7.00...7.20 Del.quantity cm3/: 17.0...23.0 1000 s: (14.5...25.5) cm3 : 3.50 1000 s: (5.50) Spread Remarks:

Note remarks

: DAF 6,2 k 4 Test sheet Edition : 23.08.91

Replaces

: ISO-4113 Test oil

: 0 400 676 177W Combination no.

Injection pump

Pump designation : PE6A85D32ORS2546 EP type number : 0 410 686 943

Governor

: RSV250...1300A1C2200 Governor design.

: 0 420 233 201 Governer no.

Customer-spec. information Customer : DAF

Engine : DF615

TEST BENCH REQUIREMENTS

Test oil

inlet temp. °C : 38...42

Overflow valve

: 1 417 413 000

Inlet press., bar: 1.50

Test nozzle holder

: 0 681 343 009 assembly

Opening |

pressure, bar : 172...175

: 1 680 750 015 Test Lines

Outside diameter x Wall thickness

: 6.00x1.50x600 x Length mm

(A) Injection pump setting values Insp. values in parentheses Set equal delivery quant.

per values

BEGINNING OF DELIVERY

Test pressure, bar: 25...27

Prestroke mm : 2.15...2.25 : (2.10...2.30)

Rack travel in mm : 7.50...10.50 Firing order : 1-5-3-6-2-

: 0-60-120-180-240-300 Phasing

Tolerance + - ° : 0.50 (0.75)

Time to cyl. no. : 1

BEGINNING OF DELIVERY DIFFERENCE

betw. rack trav. m: 8.50...9.50

& maximum rack tra: 21.00 Difference ° CS : 3.00...4.00

BASIC SETTING

rpm : 10001st speed

Rack travel in mm : 9.50...9.60

Del.quantity cm3/: 4.9...5.0

100 s: (4.7...5.2)

Spread cm3 : 0.3

100 s: (0.4)

rpm : 250.0 2nd speed Rack travel in mm: 8.3...8.5 Del.quantity cm3/: 1.4...1.9

100 s: (1.2...2.1)

cm3 : 0.2 Spread 100 s: (0.4)

GUIDE SLEEVE POSITION Control-lever position

Degree: -3 rpm : 800

Speed Rack travel in mm : 0.30...0.70

Governor spring pre-tension Click setting x : 4.25

FULL LOAD DELIV. AT FULL LOAD STOP

1st version

rpm : 1000 Speed

Del.quantity

49.0...50.0 1000 : (47.0...52.0)

cm3 : 3.00 Spread 1000 : (4.50)

RATED SPEED

1st version Control lever

position degrees: 103...111

Testina:

1st rack travel in: 8.50 rpm : 1140...1150 Speed 2nd rack travel in: 4.00 rpm : 1155...1185 Speed 3rd rack travel in: 4.00 Speed rpm : 1180...1210 4th rack travel in: 1340 rpm : 0.30...1.40 Speed LOW IDLE 1 Control lever position degrees: 69...77 Setting point w/out bumper spring Speed rpm : 250 Rack travel in mm : 7.9 Speed rpm : 250 Rack travel in mm : 8.30...8.50 Rack travel in mm : 2.00 Speed rom : 595...655 TORQUE CONTROL Torque control curve - 1st version rpm : 1000 1st speed Rack travel in m: 9.50...9.60 2nd speed rpm : 400 Rack travel in m: 9.70...9.90 od speed rpm : 300 Rack travel in m: 9.90...10.40 3rd speed rpm BREAKAWAY 1st version 1mm rack travel less than full load rack tr: 8.50 rpm : 1140...1150 Speed STARTING FUEL DELIVERY Speed rpm : 100 Del.quantity cm3/: 110.0...125.0 1000 s: (107.0...128.0) Rack travel in mm : 19.50...21.00 Remarks:

Note remarks

: DAF 6,2 k 5 Test sheet : 30.08.91 Edition

Replaces

Test oil : ISO-4113

: 0 400 676 177Y Combination no.

Injection pump

Pump designation : PE6A85D32ORS2546 : 0 410 686 943 EP type number

Governor

: RSV250...1300A1C2200 Governor design.

: 0 420 233 201 Governer no.

Customer-spec. information Customer : DAF

Engine : DF615

TEST BENCH REQUIREMENTS

Test oil

inlet temp. °C : 38...42

Overflow valve

: 1 417 413 000

Inlet press., bar: 1.50

Test nozzle holder

: 0 681 343 009 assembly

Openina

: 172...175 pressure, bar

: 1 680 750 015 Test lines

Outside diameter x Wall thickness

: 6.00x1.50x600 x Length mm

(A) Injection pump setting values Insp. values in parentheses Set equal delivery quant.

per values

BEGINNING OF DELIVERY

Test pressure, bar: 25...27

: 2.15...2.25 : (2.10...2.30) Prestroke mm

Rack travel in mm : 7.50...10.50

Firing order : 1- 5- 3- 6-

: 0-60-120-180-240-300 Phasing

Tolerance $+ - ^{\circ} : 0.50 (0.75)$

Time to cyl. no. : 1

BEGINNING OF DELIVERY DIFFERENCE

betw. rack trav. m: 8.50...9.50

& maximum rack tra: 21.00 Difference °CS : 3.00...4.00

BASIC SETTING

1st speed rpm: 1000

Rack travel in mm : 9.50...9.60

Del.quantity cm3/: 4.9...5.0

100 s: (4.7...5.2)

cm3 : 0.3Spread

100 s: (0.4)

2nd speed rpm : 250.0 Rack travel in mm : 8.3...8.5 Del.quantity cm3/ : 1.4...1.9

100 s: (1.2...2.1) Spread

cm3 : 0.2 100 s: (0.4)

GUIDE SLEEVE POSITION Control-lever position

Degree: -3

rpm : 800

Rack travel in mm : 0.30...0.70

Governor spring pre-tension Click setting x : 4.25

FULL LOAD DELIV. AT FULL LOAD STOP

1st version

Speed rpm : 1000

Del.quantity : 49.0...50.0 1000 : (47.0...52.0)

: 3.00 cm3

Spread 1000 : (4.50)

RATED SPEED

1st version

Control lever

position degrees: 103...111

Testing:

1st rack travel in: 8.50 rpm : 1140...1150 Speed 2nd rack travel in: 4.00 rpm : 1155...1185 Speed 3rd rack travel in: 4.00 rpm : 1180...1210 Speed

4th rack travel in: 1400

rpm : 0.30...1.40 Speed

LOW IDLE 1 Control lever

position degrees: 69...77 Setting point w/out bumper spring

rpm : 250 Rack travel in mm: 7.9 : 250 Speed rpm Rack travel in mm : 8.30...8.50

Rack travel in mm : 2.00 rpm : 595...655 Speed

TORQUE CONTROL

Torque control curve - 1st version

1st speed rpm : 1000

Rack travel in m: 9.50...9.60

2nd speed rpm : 400

Rack travel in m: 9.70...9.80 rd speed rpm : 300 Rack travel in m: 9.90...10.40

3rd speed

BREAKAWAY

1st version 1mm rack travel less than

full load rack tr: 8.50

rpm : 1140...1150 Speed

STARTING FUEL DELIVERY

rpm : 100 Speed

Del.quantity cm3/: 110.0...125.0 1000 s: (107.0...128.0)

Rack travel in mm : 19.50...21.00

Remarks:

Note remarks

: DAF 6,2 i 8 : 30.08.91 Test sheet Edition

Replaces

: ISO-4113 Test oil

: 0 400 676 180v Combination no.

Injection pump

Pump designation : PE6A90D320RS2547 EP type number : 0 410 696 180

Governor

: RSV250...1200A5c2203 Governor design.

: 0 420 233 203 Governer no.

Customer-spec. information : DAF Customer

: DT615 Engine

TEST BENCH REQUIREMENTS

Test oil

inlet temp. °C : 38...42

Overflow valve

: 1 417 413 000

Inlet press., bar: 1.50

Test nozzle holder

: 0 681 343 009 assembly

Opening.

pressure, bar : 172...175

Test Lines : 1 680 750 015

Outside diameter x Wall thickness

x Length mm : 6.00x1.50x600

(A) Injection pump setting values Insp. values in parentheses Set equal delivery quant.

per values ____

BEGINNING OF DELIVERY

Test pressure, bar: 25...27

: 2.20...2.30 Prestroke mm

: (2.15...2.35) Rack travel in mm : 7.50...10.50

: 1-5-3-6-2-Firing order

: 0-60-120-180-240-300 Phasing

Tolerance $+ - ^{\circ} : 0.50 (0.75)$

Time to cyl. no. : 1

BEGINNING OF DELIVERY DIFFERENCE

betw. rack trav. m: 8.50...9.50 & maximum rack tra: 21.00

Difference ° CS : 2.50...3.50

BASIC SETTING

1st speed rpm: 1000

Rack travel in mm : 10.20...10.30

Del.quantity cm3/: 6.0...6.1

100 s: (5.8...6.3)

cm3 : 0.3Spread

100 s: (0.4)

2nd speed rpm : 250.0
Rack travel in mm : 5.9...6.1
Del.quantity cm3/: 0.9...1.3
100 s: (0.7...1.5)

cm3 : 0.2Spread

100 s: (0.4)

GUIDE SLEEVE POSITION Control-lever position

Degree: -3 rpm : 800

Rack travel in mm: 0.30...0.70

Governor spring pre-tension Click setting x : 3.25

FULL LOAD DELIV. AT FULL LOAD STOP

1st version

rpm : 1000 Speed Aneroid pressure h: 700

Del.quantity

: 60.5...61.5 1000 : (58.5...63.5) cm3 : 3.00

Spread 1000 : (4.50)

RATED SPEED

1st version

Control lever

position degrees: 91...99

Testing: 1st rack travel in: 9.20 : 1090...1100 Speed rpm 2nd rack travel in: 4.00 : 1120...1150 Speed mon 3rd rack travel in: 4.00 : 1175...1205 Speed rpm 4th rack travel in: 1340 rpm : 0.30...1.40 Speed LOW IDLE 1 Control lever position degrees: 62...70 Setting point w/out bumper spring rpm : 250 Speed Rack travel in mm : 5.5 : 250 Speed rpm Rack travel in mm: 5.90...6.10 Rack travel in mm: 2.00 Speed rpm: 585...645 TORQUE CONTROL Torque control curve - 1st version 1st speed rpm : 1000 Rack travel in m: 10.20...10.30 2nd speed rpm : 400 Rack travel in m: 10.40...10.50 3rd speed rpm : 300 Rack travel in m: 10.60...11.10 Aneroid/Altitude Compensator Test 1st version Setting : 1000 Speed rom Pressure hPa : 700 : 10.20...10.30 Rack travel mm Measurement 1/min: 1000 Speed 1st pressure hPa : -Rack travel in m: 9.80...10.00 2nd pressure hPa : 250 Rack travel in m: 10.50...10.60 3rd pressure hPa : 210 Rack travel in m: 10.00...10.30 FUEL DELIVERY CHARACTERISTICS 1st version Aneroid pressure h: -

: 600

rpm

Del.quantity cm3/: 51.5...53.5 1000 s: (49.0...56.0)

BREAKAWAY

1st version 1mm rack travel less than

full load rack tr: 9.20 rpm : 1090...1100 Speed

STARTING FUEL DELIVERY

: 100 Speed rpm

Del.quantity cm3/: 135.0...145.0 1000 s: (132.0...148.0)

Rack travel in mm : 19.50...21.00

LOW IDLE

Speed rpm : 250 Rack travel in mm : 5.90...6.10

Del.quantity cm3/: 9.0...13.0 1000 s: (7.0...15.0)

cm3 : 2.50Spread

1000 s: (4.50)

:

Remarks:

Note remarks

: DAF 6,2 i 9 Test sheet : 30.08.91 Edition

Replaces

Test oil : ISO-4113

: 0 400 676 180x Combination no.

Injection pump

Pump designation: PE6A90D320RS2547 EP type number : 0 410 696 180

Governor

: RSV250...1200A5c2203 Governor design.

: 0 420 233 203 Governer no.

Customer-spec. information Customer : DAF

: DT615 Engine

TEST BENCH REQUIREMENTS

Test oil

inlet temp. °C : 38...42

Overflow valve

: 1 417 413 000

Inlet press., bar: 1.50

Test nozzle holder

: 0 681 343 009 assembly

Opening

: 172...175 pressure, bar

Test lines : 1 680 750 015

Outside diameter

x Wall thickness

: 6.00X1.50X600 x Length mm

(A) Injection pump setting values Insp. values in parentheses Set equal delivery quant. per values

BEGINNING OF DELIVERY

Test pressure, bar: 25...27

: 2.20...2.30 Prestroke mm

: (2.15...2.35) Rack travel in mm : 7.50...10.50

: 1-5-3-6-2- 4 firing order

Phasing : 0-60-120-180-240-300

Tolerance + - ° : 0.50 (0.75)

Time to cyl. no. : 1

BEGINNING OF DELIVERY DIFFERENCE

betw. rack trav. m: 8.50...9.50

& maximum rack tra: 21.00 Difference ° CS : 2.50...3.50

BASIC SETTING

rpm: 1000 1st speed

Rack travel in mm : 10.20...10.30

Del.guantity cm3/: 6.0...6.1

100 s: (5.8...6.3)

cm3 : 0.3Spread

100 s: (0.4)

2nd speed rpm : 250.0Rack travel in mm: 5.9...6.1 Del.quantity cm3/: 0.9...1.3

100 s: (0.7...1.5)

Spread cm3 : 0.2100 s: (0.4)

GUIDE SLEEVE POSITION Control-lever position

Degree: -3 rpm : 800 Speed

Rack travel in mm : 0.30...0.70

Governor spring pre-tension Click setting x : 3.25

FULL LOAD DELIV. AT FULL LOAD STOP

1st version

rpm : 1000 Speed Aneroid pressure h: 700

: 60.5...61.5 Del.quantity 1000 : (58.5...63.5)

: 3.00 Spread cm3 1000 : (4.50)

RATED SPEED

1st version Control lever

position degrees: 91...99

Testina: 1st rack travel in: 9.20 Speed rpm : 1090...1100 2nd rack travel in: 4.00 Speed rpm: 1120...1150 3rd rack travel in: 4.00 Speed rpm : 1175...1205 4th rack travel in: 1340 rpm : 0.30...1.40 Speed LOW IDLE 1 Control lever position degrees: 62...70 Setting point w/out bumper spring : 250 rpm Rack travel in mm: 5.5 : 250 Speed rpm Rack travel in mm : 5.40...5.60 Rack travel in mm: 2.00 Speed rpm : 585...645 TORQUE CONTROL Torque control curve - 1st version 1st speed rpm : 1000 Rack travel in m: 10.20...10.30 2nd speed rpm : 400 Rack travel in m: 10.40...10.50 3rd speed rpm : 300 Rack travel in m: 10.60...11.10 Aneroid/Altitude Compensator Test 1st version Settina pm : 1000 hPa : 700 Speed L DU Pressure : 10.20...10.30 Rack travel mm Measurement 1/min: 1000 Speed 1st pressure hPa : -Rack travel in m: 9.80...10.00 2nd pressure hPa : 250 Rack travel in m: 10.50...10.60 3rd pressure hPa : 210 Rack travel in m: 10.00...10.30 FUEL DELIVERY CHARACTERISTICS 1st version Aneroid pressure h: rpm : 600 Speed

Del.quantity cm3/: 51.5...53.5

1000 s: (49.0...56.0)

BREAKAWAY 1st version 1mm rack travel less than full load rack tr: 9.20 Speed rpm : 1090...1100 STARTING FUEL DELIVERY rpm : 100 Speed Del.quantity cm3/: 135.0...145.0 1000 s: (132.0...148.0) Rack travel in mm : 19.50...21.00 LOW IDLE Speed rpm : 250 Rack travel in mm : 5.90...6.10 Del.quantity cm3/: 9.0...13.0 1000 s: (7.0...15.0) Spread cm3 : 2.50 1000 s: (4.50) Remarks:

Note remarks

: DAF 8,3 n 9 Test sheet Edition : 30.08.91

Replaces

Test oil : ISO-4113

Combination no. : 0 400 676 185Y

Injection pump

Pump designation : PE6A95D41DRS2575 EP type number : 0 410 696 984

Governor

: asv250...1200A5c2198 Governor design.

-3L

: 0 420 232 452 Governer no.

: 0763026 Cust. part no.

Customer—spec. information Customer

: DH 825 Engine

TEST BENCH REQUIREMENTS

Test oil

inlet temp. °C : 38...42

Overflow valve

: 1 417 413 000

Inlet press., bar: 1.50

Test nozzle holder

assembly : 0 681 343 009

Opening

pressure, bar : 172...175

Test lines : 1 680 750 015

Outside diameter x Wall thickness

: 6.00x1.50x600 x Length mm

(A) Injection pump setting values Insp. values in parentheses Set equal delivery quant.

per values _

BEGINNING OF DELIVERY

Test pressure, bar: 25...27

: 2.00...2.10 Prestroke mm

: (1.95...2.15)

Rack travel in mm : 7.50...10.50

H20

Firing order : 1-5- 3- 6- 2- 4

: 0-60-120-180-240-300 Phasing

Tolerance + - ° : 0.50 (0.75)

Time to cyl. no. : 1

BEGINNING OF DELIVERY DIFFERENCE

betw. rack trav. m: 8.50...9.50 & maximum rack tra: 21.00 Difference ° CS : 3.00...4.00

BASIC SETTING

rpm: 1000 1st speed

Rack travel in mm : 9.90...10.00

Del.quantity cm3/: 6.8...6.9

100 s: (6.6...7.1)

Spread cm3 : 0.3

100 s: (0.6)

2nd speed rpm : 250.0 Rack travel in mm: 6.0...6.2

Del.quantity cm3/: 0.7...1.1 100 s: (0.4...1.3)

cm3 : 0.3Spread 100 s: (0.5)

GUIDE SLEEVE POSITION

Control-lever position Degree: -3

rpm : 800 Speed Rack travel in mm : 0.30...0.70

Governor spring pre-tension Click setting x : 5.75

FULL LOAD DELIV. AT FULL LOAD STOP

1st version

rpm : 1000 Speed

: 68.5...69.5 Del.quantity 1000 : (66.5...71.5)

: 3.50 cm3

1000 : (6.00)

RATED SPEED

Spread

1st version

Control lever

position degrees: 100...108

Testina: 1st rack travel in: 8.90 rpm : 1090...1100 Speed 2nd rack travel in: 4.00 rpm : 1145...1175 Speed 3rd rack travel in: 4.00 Speed rpm : 1200...1230 4th rack travel in: 1375 Speed rpm : 0.30...1.40 LOW IDLE 1 Control lever position degrees: 73...81 Setting point w/out bumper spring rpm : 250 Rack travel in mm: 5.6 : 250 Speed rpm Rack travel in mm : 6.00...6.20 Rack travel in mm : 2.00 rpm : 650...710 Speed TORQUE CONTROL : 0.80 Dimension a mm Torque control curve - 1st version : 1040 1st speed rom Rack travel in m: 9.90...10.00 rpm : 500 2nd speed Rack travel in m: 10.60...10.70 3rd speed rpm : 850 Rack travel in m: 10.40...10.50 th speed rpm : 940 4th speed nom Rack travel in m: 10.20...10.50 **BREAKAWAY** 1st version 1mm rack travel less than full load rack tr: 8.90 rpm : 1090...1100 Speed STARTING FUEL DELIVERY : 100 Speed rpm Del.quantity cm3/: 125.0...135.0 1000 s: (122.0...138.0) Rack travel in mm: 19.50...21.00 LOW IDLE Speed rpm : 250 Rack travel in mm : 6.00...6.20 Del.quantity cm3/: 7.0...11.0 1000 s: (4.5...13.5) Spread cm3 : 3.50 1000 s: (5.50)

Remarks:

Note remarks

: DAF 8,3 n10 Test sheet Edition : 30.08,91

Replaces

Test oil : ISO-4113

Combination no. : 0 400 676 1927

Injection pump

Pump designation : PE6A95D41ORS2575 : 0 410 696 984 EP type number

Governor

: RSV250...750A7C2201-Governor design.

: 0 420 232 563 Governer no.

Customer-spec. information Customer : DAF

Engine : DH 825

TEST BENCH REQUIREMENTS

Test oil

inlet temp. °C : 38...42

Overflow valve

: 1 417 413 000

Inlet press., bar: 1.50

Test nozzle holder

: 0 681 343 009 assembly

Opening

pressure, bar : 172...175

Test lines : 1 680 750 015

Outside diameter x Wall thickness

: 6.00x1.50x600 x Length mm

(A) Injection pump setting values Insp. values in parentheses Set equal delivery quant.

per values ___

BEGINNING OF DELIVERY

Test pressure, bar: 25...27

Prestroke mm : 2.00...2.10

: (1.95...2.15)

Rack travel in mm : 7.50...10.50 Firing order : 1-5-3-6-2-

: 0-60-120-180-240-300 Phasing

Tolerance + - ° : 0.50 (0.75)

Time to cyl. no. : 1

BEGINNING OF DELIVERY DIFFERENCE

betw. rack trav. m: 8.50...9.50 & maximum rack tra: 21.00 Difference ° CS : 3.00..4.00

BASIC SETTING

rpm: 700 1st speed

Rack travel in mm : 13.20...13.30

Del.quantity cm3/: 11.0...11.1

100 s: (10.8...11.3)

cm3 : 0.3Spread

100 s: (0.6)

rpm : 250.0 2nd speed

Rack travel in mm: 6.0...6.2

Del.quantity cm3/: 0.7...1.3 100 s: (0.5...1.4)

Spread cm3 : 0.3

100 s: (0.5)

GUIDE SLEEVE POSITION

Control-lever position Degree: -3

rpm : 800

Rack travel in mm : 0.30...0.70

Governor spring pre-tension Click setting x : 5.75

FULL LOAD DELIV. AT FULL LOAD STOP

1st version

rpm : 700 Speed

: 110.5...111.5 Del.quantity : (108.5...113.5) 1000

3.50 cm3

Spread 1000 : (6.00)

RATED SPEED

1st version

Control lever

position degrees: 104...112

Testing:

1st rack travel in: 12.20 Speed rpm : 900...905 2nd rack travel in: 4.00 Speed rpm : 940...955 4th rack travel in: 1090 Speed rpm: 0.30...1.40 LOW IDLE 1

Control lever

position degrees: 71...79 Setting point w/out bumper spring

Speed rpm : 250 Rack travel in mm : 6.1

Testing:

Speed rpm : 100 Minimum rack trave: 19.50 rpm : 250 Speed Rack travel in mm: 6.00...6.20 Rack travel in mm: 2.00 Speed rpm: 265...325

SET IDLE AUXILIARY SPRING Rack travel in mm: 2.00

BREAKAWAY

1st version 1mm rack travel less than

full load rack tr: 12.20 rpm : 900...905 Speed

STARTING FUEL DELIVERY

Speed rpm : 100 Rack travel in mm : 19.50...21.00

LOW IDLE

Speed rpm : 250
Rack travel in mm : 6.00...6.20
Del.quantity cm3/ : 7.0...13.0
1000 s: (5.5...14.5)
Spread cm3 : 3.50
1000 s: (5.50)

Remarks:

APPLICATION

Generator

Note remarks

: MB 4,0 j Test sheet Edition : 21.08.91 : 19.3.91 Replaces : ISO-4113 Test oil

: 0 400 844 095 Combination no.

Injection pump

Pump designation : PES4A95D410RS2809 EP type number : 0 410 894 993

Governor

: RQV300...1400AB1065-Governor design.

: 0 420 212 227 Governer no.

Customer-spec. information

Customer : MERCEDES-BENZ

: OM 364 Engine

1st version kW : 65.0 : 2800 Rated speed

TEST BENCH REQUIREMENTS

Test oil

inlet temp. °C : 38...42

Overflow valve

: 1 417 413 000

Inlet press., bar: 1.50

Test nozzle holder

: 0 681 343 009 assembly

Opening |

: 172...175 pressure, bar

: 1 680 750 015 Test Lines

Outside diameter

x Wall thickness

x Length mm : 6.00X1.50X600

(A) Injection pump setting values Insp. values in parentheses Set equal delivery quant.

per values

BEGINNING OF DELIVERY Test pressure, bar: 25...27

: 3.20...3.30 Prestroke mm

: (3.15...3.35)

Rack travel in mm : 9.00...12.00

: 1-3-4-2 Firing order

: 0-90-180-270 Phasing

Tolerance + - * : 0.50 (0.75)

BASIC SETTING

1st speed rpm: 1400

Rack travel in mm : 9.90...10.00

Del.guantity cm3/: 6.5...6.6

100 s: (6.3...6.8)

cm3 : 0.3Spread

100 s: (0.6)

rpm : 300.02nd speed Rack travel in mm: 8.4...8.6 Del.guantity cm3/: 0.8...1.2

100 s: (0.5...1.4)

cm3 : 0.3 Spread 100 s: (0.5)

(B) Setting of injection pump with governor

GUIDE SLEEVE TRAVEL

rpm : 300 1st speed

: 0.80...1.30 travel mm

: 500 2nd speed rpm

2.30...2.80 travel mm

: 750 3rd speed rom

: 4.10...4.30 travel mm

: 1500 4th speed rpm

travel mm : 8.50...8.60

GUIDE SLEEVE POSITION Control-lever position

Degree: -1

rpm: 1450 Speed

Rack travel in mm : 15.20...17.80

FULL LOAD DELIV. AT FULL LOAD STOP

1st version

rpm : 1400 Speed

: 65.0...66.0 Del.quantity

1000 : (63.0...68.0)

: 3.50 Spread cm3 1000 : (6.00)

RATED SPEED

1st version Control lever

position degrees: 111...119

Testing:

1st rack travel in: 8.90

rpm : 1450...1460 Speed

2nd rack travel in: 4.00

Speed rpm : 1535...1565 4th rack travel in: 1670

npm : 0.00...1.00Speed

LOW IDLE 1 Control Lever

position degrees: 73...81

Testing:

: 100 Speed rpm Minimum rack trave: 9.60 rpm : 300 Speed

Rack travel in mm : 8.40...8.60

CONSTANT REGULATION

rpm : 550...700 Speed

TORQUE CONTROL

Dimension a mm : 0.80

Torque control curve - 1st version

rpm : 1400 1st speed

Rack travel in m: 9.90...10.00

2nd speed rpm : 400

Rack travel in m: 10.70...10.90

3rd speed rpm : 670

Rack travel in m: 10.50...10.70 4th speed rpm : 1060 Rack travel in m: 10.10...10.40

START CUT-OUT

1/min : 220 (240) Speed

FUEL DELIVERY CHARACTERISTICS

1st version

rpm : 400 Speed

Del.quantity cm3/: 48.0...51.0

1000 s: (45.5...53.5)

BREAKAWAY

1st version 1mm rack travel less than

full load rack tr: 8.90 rpm : 1450...1460 Speed

STARTING FUEL DELIVERY

Speed rpm : 100 Del.quantity_cm3/ : 78.0...88.0

1000 s: (75.0...91.0)

Rack travel in mm : 14.80...15.20

Remarks:

Note remarks

Test sheet : MB 4,0 j 1 : 21.08.91 Edition : 19.3.91 Replaces : ISO-4113 Test oil

: 0 400 844 096 Combination no.

Injection pump

Pump designation : PES4A95D41ORS2809 : 0 410 894 993 EP type number

Governor

Governor design. : RQV300...1400AB1065-

23L

: 0 420 212 227 Governer no.

Customer-spec. information

: MERCEDES-BENZ Customer

: OM 364 Engine

1st version kW : 65.0 : 2800 Rated speed

TEST BENCH REQUIREMENTS

Test oil

inlet temp. °C : 38...42

Overflow valve

: 1 417 413 000

Inlet press., bar: 1.50

Test nozzle holder

: 0 681 343 009 assembly

Opening

pressure, bar : 172...175

Test lines : 1 680 750 015

Outside diameter

x Wall thickness

: 6.00X1.50X600 x Length mm

(A) Injection pump setting values Insp. values in parentheses Set equal delivery quant.

per values ____

BEGINNING OF DELIVERY

Test pressure, bar: 25...27

Prestroke mm : 3.20...3.30 : (3.15...3.35)

Rack travel in mm : 9.00...12.00

: 1-3-4-2 Firing order

Phasing : 0-90-180-270

Tolerance + - ° : 0.50 (0.75)

BASIC SETTING

rpm: 1400 1st speed

Rack travel in mm : 9.90...10.00

Del.quantity cm3/: 6.5...6.6

100 s: (6.3...6.8)

cm3 : 0.3Spread

100 s: (0.6)

rpm : 300.0 2nd speed

Rack travel in mm: 8.4...8.6 Del.quantity cm3/: 0.8...1.2

100 s: (0.5...1.4)

cm3 : 0.3 Spread 100 s: (0.5)

(B) Setting of injection pump

with governor

GUIDE SLEEVE TRAVEL

1st speed rpm : 300 : 0.80...1.30 travel mm

2nd speed : 500 rpm

: 2.30...2.80 rpm : 750 travel mm 3rd speed

travel mm : 4.10...4.30

: 1500 4th speed rpm

: 8.50...8.60 travel mm

GUIDE SLEEVE POSITION

Control-lever position

Degree: -1 rpm : 1450 Speed

Rack travel in mm : 15.20...17.80

FULL LOAD DELIV. AT FULL LOAD STOP

1st version

rpm : 1400 Speed

: 65.0...66.0 Del.quantity

1000 : (63.0...68.0)

Spread cm3 : 3.50

1000 : (6.00)

RATED SPEED

1st version Control Lever position degrees: 111...119 Testing: 1st rack travel in: 8.90 rpm : 1450...1460 Speed 2nd rack travel in: 4.00 rpm : 1535...1565 Speed 4th rack travel in: 1670 rpm : 0.00...1.00 Speed LOW IDLE 1 Control lever position degrees: 73...81 Testing: Speed : 100 וחכורו Minimum rack trave: 9.60 rpm : 300 Rack travel in mm: 8.40...8.60 CONSTANT REGULATION rpm : 550...700 Speed TORQUE CONTROL Dimension a mm : 0.80 Torque control curve - 1st version 1st speed rpm : 1400 Rack travel in m: 9.90...10.00 2nd speed rpm : 400 Rack travel in m: 10.70...10.90 rpm : 670 3rd speed Rack travel in m: 10.50...10.70 rpm : 1060 4th speed Rack travel in m: 10.10...10.40 START CUT-OUT 1/min: 220 (240) Speed FUEL DELIVERY CHARACTERISTICS 1st version rpm : 400 Speed Del.quantity cm3/: 48.0...51.0 1000 s: (45.5...53.5)

BREAKAWAY

1st version 1mm rack travel less than

full load rack tr: 8.90 rpm : 1450...1460 Speed

STARTING FUEL DELIVERY

rpm : 100 Speed

Del.quantity cm3/: 78.0...88.0 1000 s: (75.0...91.0) Rack travel in mm : 14.80...15.20

Remarks:

Note remarks

Test sheet : MB 6,0 a Edition : 21.08.91 Replaces : 6.7.90 Test oil : ISO-4113

Combination no. : 0 400 846 522

Injection pump

Pump designation : PES6A90D410RS2667 EP type number : 0 410 896 080

Governor

Governor design. : RQV300...1400AB1065-

41

Governer no. : 0 420 212 168

Customer—spec. information

Customer : DAIMLER-BENZ

Engine : OM 366

1st version kW : 100.0 Rated speed : 2800

TEST BENCH REQUIREMENTS

Test oil

inlet temp. °C : 38...42

Overflow valve

: 1 417 413 000

Inlet press., bar: 1.50

Test nozzle holder

assembly : 0 681 343 009

Openina

pressure, bar : 172...175

Test Lines : 1 680 750 015

Outside diameter x Wall thickness

x Length mm : 6.00x1.50x600

(A) Injection pump setting values Insp. values in parentheses Set equal delivery quant.

per values

BEGINNING OF DELIVERY

Test pressure, bar: 25...27

Prestroke mm : 2.25...2.35

: (2.20...2.40)

Rack travel in mm : 9.00...12.00

Firing order : 1-5-3-6-2-4

Phasing : 0-60-120-180-240-300

Tolerance $+ - \circ : 0.50 (0.75)$

BASIC SETTING

1st speed rpm: 1400

Rack travel in mm : 11.10...11.20

Del.quantity cm3/: 6.3...6.4

100 s: (6.1...6.6)

Spread cm3: 0.3

100 s: (0.4)

2nd speed rpm : 300.0 Rack travel in mm : 8.9...9.1 Del.quantity cm3/ : 0.9...1.3 100 s: (0.7...1.5)

Spread cm3 : 0.2 100 s: (0.4)

(B) Setting of injection pump with governor

GUIDE SLEEVE TRAVEL

1st speed rpm: 300

travel mm : 0.80...1.30 2nd speed rpm : 600

travel mm : 2.40...4.00

3rd speed rpm : 650 travel mm : 3.70...4.20

4th speed rpm : 1450

travel mm : 8.40...8.50

FULL LOAD DELIV. AT FULL LOAD STOP

1st version

Spread

Speed rpm: 1400

Del.quantity : 63.5...64.5 1000 : (61.5...66.5)

cm3 : 3.00

1000 : (4.50)

RATED SPEED

1st version Control lever

position degrees: 108...116

Testina:

1st rack travel in: 10.10

rpm : 1440...1450 Speed

2nd rack travel in: 4.00

Speed rpm : 1540...1570 4th rack travel in: 1650

rpm : 0.00...1.00 Speed

LOW IDLE 1 Control lever

position degrees: 74...82

Testing:

Speed rpm : 100 Minimum rack trave: 10.30 rpm : 300 Speed

Rack travel in mm : 8.90...9.10

CONSTANT REGULATION

rpm : 540...680 Speed

TORQUE CONTROL

Dimension a mm : 1.10

Torque control curve - 1st version 1st speed rpm : 1400

Rack travel in m: 11.10...11.20

rpm : 500 2nd speed

Rack travel in m: 12.20...12.40

3rd speed rpm : 900

Rack travel in m: 11.80...12.10 th speed rpm : 1100 Rack travel in m: 11.40...11.70

4th speed

START CUT-OUT

1/min : 220 (240) Speed

FUEL DELIVERY CHARACTERISTICS

1st version

rpm : 500 Speed

Del.quantity cm3/: 52.0...54.0

1000 s: (49.5...56.5)

Speed rpm : 900
Del.quantity cm3/: 55.0...58.0
1000 s: (52.5...60.5)
1000 s: 80.00)

BREAKAWAY

1st version

1mm rack travel less than

full load rack tr: 10.10

rpm : 1440...1450 Speed

STARTING FUEL DELIVERY

rpm : 100 Speed

J01

Del.quantity cm3/: 78.0...88.0

1000 s: (75.0...91.0)

Rack travel in mm : 17.00...17.40

Remarks:

Set shutoff stop to contact at 3.0...3.5 mm control-rod travel.

Note remarks

: IHC 7,6 y 1 : 21.08.91 Test sheet Edition Replaces : 18.6.91 Test oil : ISO-4113

: 0 400 846 580 Combination no.

Injection pump

Pump designation : PES6A95D32ORS2779 : 0 410 896 903 EP type number

Governor

: RQV350...1350AB1248-Governor design.

1R

: 0 420 213 121 Governer no.

Customer-spec. information Customer : NAVISTAR

Engine : DTA 360

: 138.0 1st version kW : 2700 Rated speed

TEST BENCH REQUIREMENTS

Test oil

inlet temp. °C : 38...42

Overflow valve

: 2 417 413 038

Inlet press., bar: 2.80

Test nozzle holder

: 1 688 901 110 assembly

Opening 1

: 250...253 pressure, bar

Orifice plate

: 0,5 diameter mm

Test lines : 1 680 750 008

Outside diameter

x Wall thickness

x Length mm : 6.00X2.00X600

(A) Injection pump setting values Insp. values in parentheses Set equal delivery quant.

per values

BEGINNING OF DELIVERY

Test pressure, bar: 27...29

Prestroke mm : 2.65...2.75 : (2.60...2.80) Rack travel in mm : 10.50

: 1-5-3-6-2-4 Firing order

: 0-60-120-180-240-300 Phasing

Tolerance + - ° : 0.50 (0.75)

Time to cyl. no. : 1

BASIC SETTING

1st speed rom: 1350

Rack travel in mm : 12.30...12.40

Del.quantity cm3/: 8.4...8.6

100 s: (8.2...8.8)

cm3 : 0.3Spread

100 s: (0.6)

rpm : 350.02nd speed

Rack travel in mm: 5.9...6.1

cm3 : 0.3Spread 100 s: (0.5)

(B) Setting of injection pump with governor

GUIDE SLEEVE TRAVEL

1st speed rpm : 1350

: 7.30...7.50 rpm : 1460 travel mm

2nd speed

travel mm : 8.10...8.50

rpm : 550 3rd speed

: 3.10...3.70 travel mm

: 350 4th speed rpm

: 1.30...1.70 travel mm

FULL LOAD DELIV. AT FULL LOAD STOP

1st version

rpm : 1350 Speed

Aneroid pressure h: 900

Del.quantity : 84.0...88.0)

: 3.50 cm3

1000 : (6.00)

RATED SPEED

Spread

1st version Control Lever

position degrees: 44...52

Testina:

1st rack travel in: 11.30 rpm : 1390...1420 Speed

2nd rack travel in: 4.00

rpm : 1525...1535 Speed

4th rack travel in: 1625

rpm : 0.00...1.00 Speed

LOW IDLE 1 Control Lever

position degrees: 11...19

Testing:

Speed : 100 mom. Minimum rack trave: 9.00 rpm : 350

Rack travel in mm : 5.90...6.10

CONSTANT REGULATION

rpm : 350...500 Speed

Aneroid/Altitude Compensator Test

1st version

Setting

Speed : 500 rpm hPa : 900 Pressure

Rack travel mm : 12.30...12.40

Measurement

1/min: 500 Speed

1st pressure hPa : -

Rack travel in m: 9.50...9.70

2nd pressure hPa : 215

Rack travel in m: 10.00...10.10

3rd pressure hPa : 430

Rack travel in m: 11.30...11.70

START CUT-OUT

1/min: 270 (280) Speed

FUEL DELIVERY CHARACTERISTICS

1st version

Aneroid pressure h: rpm : 500

Del.quantity cm3/: 67.0...71.0 1000 s: (65.0...73.0)

BREAKAWAY

J03

1st version

1mm rack travel less than

full load rack tr: 11.30

: 1390...1420 Speed וחמיו

STARTING FUEL DELIVERY

Speed rpm

Del.quantity cm3/: 145.0...165.0 1000 s: (140.0...170.0)

Rack travel in mm : 20.00...21.00

LOW IDLE

Speed rpm : 350
Rack travel in mm : 5.90...6.10
Del.quantity cm3/: 17.0...21.0
1000 s: (15.0...23.0)

cm3 : 3.50 Spread

1000 s: (5.50)

Remarks:

: NAVISTAR #1816728C91

Limit shutoff stop screw to 1.0 mm.

Start-of-delivery mark is at start of

delivery of cylinder 1

Note remarks

Test sheet : CUM 8,3 k 3
Edition : 21.08.91
Replaces : 2.5.90
Test oil : ISO-4113

Combination no. : 0 400 866 141

Injection pump

Pump designation : PES6A1COD320/3RS2691

EP type number : 9 410 230 025

Governor

Governor design. : RSV400...1250A0C2216

-3R

Governer no. : 0 420 233 238

Customer—spec. information Customer : C.D.C.

Engine : 6 CT 8.3 ltr

1st version kW : 160.0 Rated speed : 2500

TEST BENCH REQUIREMENTS

Test oil

inlet temp. °C : 38...42

Overflow valve

: 1 417 413 047

Inlet press., bar: 1.50

Test nozzle holder

assembly : 1 688 901 017

Opening

pressure, bar : 207...210

Orifice plate

diameter mm : 0,6

Test Lines : 1 680 750 014

Outside diameter

x Wall thickness

x Length mm : 6.00X2.00X600

(A) Injection pump setting values Insp. values in parentheses Set equal delivery quant.

per values ____

BEGINNING OF DELIVERY

Test pressure, bar: 27...29

Prestroke mm : 2.80...2.90 : (2.75...2.95)

Rack travel in mm: 10.50

Firing order : 1-5-3-6-2-4

Phasing : 0-60-120-180-240-300

Tolerance $+ - \circ : 0.50 (0.75)$

Time to cyl. no. : 1

BASIC SETTING

1st speed rpm: 1250

Rack travel in mm : 12.00...12.10

Del.quantity cm3/: 12.1...12.3

100 s: (11.9...12.5)

Spread cm3: 0.4

100 s: (0.6)

2nd speed rpm : 400.0 Rack travel in mm : 5.4...5.6

Del.quantity cm3/: 1.7...2.1

100 s: (1.4...2.3)

Spread cm3 : 0.6 100 s: (0.8)

GUIDE SLEEVE POSITION Control-lever position

Degree: -3

Speed rpm: 800

Rack travel in mm : 0.30...0.70

Governor spring pre-tension

Click setting x :?

FULL LOAD DELIV. AT FULL LOAD STOP

1st version

Speed rpm: 1250

Del.quantity : 121.0...123.0

1000 : (119.0...125.0)

Spread cm3 : 4.00

1000 : (6.50)

RATED SPEED

1st version

Control lever

position degrees: 52...60

Testing:

J04

1st rack travel in: 11.00 rpm : 1290...1300 Speed 2nd rack travel in: 4.00 rpm : 1355...1385 Speed 3rd rack travel in: 4.00

rpm : 1360...1390 Speed 4th rack travel in: 1450

rpm : 0.30...1.40 Speed

LOW IDLE 1 Control lever

position degrees: 26...34 Setting point w/out bumper spring

: 400 Speed riom Rack travel in mm: 5.0

Testing:

: 100 Speed rom Minimum rack trave: 19.00 rpm : 400 Speed

Rack travel in mm : 5.40...5.60

TORQUE CONTROL

Torque control curve - 1st version

rpm : 1250 1st speed

Rack travel in m: 12.00...12.10

2nd speed rpm : 750

Rack travel in m: 12.50...12.70

FUEL DELIVERY CHARACTERISTICS

1st version

Speed rpm

Del.quantity cm3/: 122.5...126.5 1000 s: (120.5...128.5)

BREAKAWAY

1st version 1mm rack travel less than

full load rack tr: 11.00

rpm : 1290...1300 Speed

STARTING FUEL DELIVERY

Speed : 100 rpm

Del.quantity cm3/: 135.0...155.0 1000 s: (130.0...160.0) Rack travel in mm: 19.00...21.00

LOW IDLE

rpm : 400 Speed

Rack travel in mm: 5.40...5.60 Del.quantity cm3/: 17.0...21.0 1000 s: (14.5...23.5)

J05

cm3 : 6.00 Spread 1000 s: (8.00)

Remarks:

: C.D.C. # 3915979

Start-of-delivery mark 11° cam angle after start of delivery cyl. 1

Adjust stop lever to 0.5.,.1.0 mm before stop.

BOSCH INJ. PUMP TEST SPECIFICATIONS Note remarks : CUM 8,3 o Test sheet : 21.08.91 Edition Replaces : ISO-4113 Test oil Combination no. : 0 400 866 151 Injection pump Pump designation : PES6A100D320/3RS2691 : 9 410 230 030 EP type number Governor Governor design. : RSV450...1100A0C2238 : 0 420 233 254 Governer no. Customer-spec. information Customer : C.D.C. : 6CT830 Engine : 151.0 1st version kW Rated speed : 2200 TEST BENCH REQUIREMENTS Test oil inlet temp. °C : 38...42 Overflow valve : 1 417 413 047 Inlet press., bar : 1.50 Test nozzle holder : 1 688 901 017 assembly Opening. pressure, bar : 207...210 Orifice plate diameter mm : 0,6 Test Lines : 1 680 750 014 Outside diameter x Wall thickness x Length mm : 6.00x2.00x600 (A) Injection pump setting values Insp. values in parentheses Set equal delivery quant.

Test pressure, bar: 27...29 : 2.80...2.90 Prestroke mm : (2.75...2.95) Rack travel in mm : 10.50 : 1-5-3-6-2-4 Firing order Phasing : 0-60-120-180-240-300 Phasing Tolerance + - ° : 0.50 (0.75) Time to cyl. no. : 1 BASIC SETTING rpm: 1100 1st speed Rack travel in mm : 12.10...12.20 Del.quantity cm3/: 11.8...12.0 100 s: (11.6...12.2) cm3 : 0.4Spread 100 s: (0.6) 2nd speed rpm : 450.0 Rack travel in mm: 5.4...5.6 Del.quantity cm3/: 1.6...2.0 100 s: (1.3...2.2) cm3 : 0.6Spread 100 s: (0.8) GUIDE SLEEVE POSITION Control-lever position Degree: -3 rpm : 800 Speed Rack travel in mm : 0.30...0.70 Governor spring pre-tension Click setting x : ? FULL LOAD DELIV. AT FULL LOAD STOP 1st version rpm : 1100 Speed Aneroid pressure h: 900 : 118.5...120.5 Del.quantity 1000 : (116.5...122.5) : 4.00 cm3 Spread 1000 : (6.50) RATED SPEED 1st version Control lever

position degrees: 42...50

per values

BEGINNING OF DELIVERY

Testing:

1st rack travel in: 11.10

: 1140...1150 Speed rom

2nd rack travel in: 4.00

rpm : 1195...1205 Speed

3rd rack travel in: 4.00

Speed rpm : 1185...1215

4th rack travel in: 1300

rpm : 0.30...1.40Speed

LOW IDLE 1

Control Lever

position degrees: 22...30

Setting point w/out bumper spring

: 450 rpm Rack travel in mm: 5.0

Testing:

Speed : 100 rpm

Minimum rack trave: 19.00

: 450 rom Rack travel in mm : 5.40...5.60

TORQUE CONTROL

Torque control curve - 1st version

1st speed rpm : 1100 Rack travel in m: 12.10...12.20 2nd speed rpm : 750

Rack travel in m: 13.20...13.40

Aneroid/Altitude Compensator Test

1st version

Setting

: 500 Speed rpm

Pressure hPa : 900

Rack travel mm : 13.20...13.40

Measurement

1/min: 500 Speed

1st pressure hPa : -

Rack travel in m: 10.40...10.60 2nd pressure hPa : 385 Rack travel in m: 11.40...11.50 3rd pressure hPa : 560 Rack travel in m: 12.60...13.00

FUEL DELIVERY CHARACTERISTICS

1st version

Aneroid pressure h: 900

rpm : 750 Speed

Del.quantity cm3/: 133.0...137.0 1000 s: (131.0...139.0)

Aneroid pressure h: -

Speed rpm : 500 Del.quantity cm3/: 78.0...80.0

1000 s: (76.0...82.0)

BREAKAWAY

1st version

1mm rack travel less than

full load rack tr: 11.10

rpm : 1140...1150 Speed

STARTING FUEL DELIVERY

Speed rpm : 100 Del.quantity cm3/ : 135.0...155.0 1000 s: (130.0...160.0)

Rack travel in mm : 20.00...21.00

LOW IDLE

Speed : 450 rpm

Rack travel in mm: 5.40...5.60

Del.quantity cm3/: 16.0...20.0 1000 s: (13.5...22.5)

cm3 : 6.00

1000 s: (8.00)

Remarks:

Spread

: C.D.C. # 3915996

Adjustment without torque-control spring retainer with 1 mm less control-rod travel. Increase in full-load delivery with torque-control spring retainer.

Start-of-delivery mark 11° cam angle after start of delivery cyl. 1

Adjust stop lever to 0.5...1.0 mm before stop.

Note remarks

: CUM 8,3 a96 : 21.08.91 Test sheet Edition

: 8.7.91 Replaces : ISO-4113 Test oil

Combination no. : 0 400 866 170

Injection pump

Pump designation : PES6A100D320/3RS2691

: 9 410 230 025 EP type number

Governor

: RSV400...1100A0C2190 Governor design.

-53R

: 0 420 233 284 Governer no.

Customer-spec. information Customer : C.D.C.

: 6 CT 8.3ltr Engine

1st version kW : 173.0 Rated speed : 2200

TEST BENCH REQUIREMENTS

Test oil

inlet temp. °C : 38...42

Overflow valve

: 1 417 413 047

Inlet press., bar: 1.50

Test nozzle holder

: 1 688 901 101 assembly

Opening

: 207...210 pressure, bar

Orifice plate

diameter mm : 0,6

: 1 680 750 014 Test lines

Outside diameter

x Wall thickness

: 6.00x2.00x600 x Length mm

(A) Injection pump setting values Insp. values in parentheses Set equal delivery quant.

per values

BEGINNING OF DELIVERY

Test pressure, bar: 27...29

Prestroke mm : 2.80...2.90 : (2.75...2.95)
Rack travel in mm : 10.50

: 1-5-3-6-2-4 Firing order

: 0-60-120-180-240-300 Phasing

: 0.50 (0.75) Tolerance + - °

: 1 Time to cyl. no.

BASIC SETTING

1st speed rpm: 1100

Rack travel in mm : 10.70...10.80

Del.quantity cm3/: 9.8...10.0

100 s: (9.6...10.2)

cm3 : 0.4Spread

100 s: (0.6)

rpm : 425.0 2nd speed

Rack travel in mm : 5.6...5.8 Del.quantity cm3/ : 1.6...2.0

100 s: (1.3...2.2)

cm3 : 0.6

Spread 100 s: (0.8)

GUIDE SLEEVE POSITION Control-lever position

Degree: -3 rpm : 800 Speed

Rack travel in mm : 0.30...0.70

Governor spring pre-tension Click setting x : 2.50

FULL LOAD DELIV. AT FULL LOAD STOP

1st version

: 1100 Speed rpm

: 98.0...100.0 Del.quantity 1000 : (96.0...102.0)

: 4.00 Spread cm3

1000 : (6.50)

RATED SPEED

1st version

Control lever

position degrees: 43...51

Testing:

108

1st rack travel in: 9.70 rpm : 1170...1180 Speed 2nd rack travel in: 4.00 Speed rpm: 1235...1245 3rd rack travel in: 4.00 Speed rpm : 1230...1260 4th rack travel in: 1300 Speed rpm : 0.30...1.40 Speed LOW IDLE 1 Control lever position degrees: 25...33 Setting point w/out bumper spring rpm : 425 Rack travel in mm: 5.2 Testing: rpm : 100 Speed Minimum rack trave: 19.00 rpm : 425 Speed Rack travel in mm : 5.60...5.80 **BREAKAWAY**

1st version 1mm rack travel less than

full load rack tr: 9.70 rpm : 1170...1180 Speed

STARTING FUEL DELIVERY

Speed : 100 rpm

Del.quantity cm3/: 135.0...155.0 1000 s: (130.0...160.0)

Rack travel in mm: 19.00...21.00

LOW IDLE

Speed rpm : 425
Rack travel in mm : 5.60...5.80
Del.quantity cm3/: 16.0...20.0
1000 s: (13.5...22.5)

Spread cm3 : 6.001000 s: (8.00)

Remarks:

: C.D.C. # 3919767

Adjust stop lever to 0.5...1.0 mm before stop.

Start-of-delivery mark 11° cam angle after start of delivery cyl. 1

Note remarks

: KHD 6,1 w 1 Test sheet Edition : 21.08.91

Replaces

Test oil : ISO-4113

Combination no. : 0 400 866 173

Injection pump

Pump designation : PES6A85D410/3RS2611

EP type number : 0 410 886 902

Governor

: RSV325...1200A0c2148 Governor design.

: D 420 232 567 Governer no.

Customer-spec. information : KHD Customer

: F6L913 H Engine

1st version kW : 85.0 Rated speed : 2400

TEST BENCH REQUIREMENTS

Test oil

inlet temp. °C : 38...42

Overflow valve

: 1 417 413 000

Inlet press., bar: 1.50

Test nozzle holder

: 0 681 343 009 assembly

Opening

: 172...175 pressure, bar

: 1 680 750 014 Test lines

Outside diameter

x Wall thickness

: 6.00X2.00X600 x Length mm

(A) Injection pump setting values Insp. values in parentheses Set equal delivery quant.

per values

BEGINNING OF DELIVERY Test pressure, bar: 25...27

: 2.50...2.60 : (2.45...2.65) Prestroke mm

Rack travel in mm : 9.00...12.00 Firing order : 1-5- 3- 6- 2- 4

: 0-60-120-180-240-300 Phasing

Tolerance + - ° : 0.50 (0.75)

BASIC SETTING

rpm: 1200 1st speed

Rack travel in mm : 10.40...10.50

Del.quantity cm3/: 6.1...6.2

100 s: (5.9...6.4)

cm3 : 0.3Spread

100 s: (0.5)

rpm : 325.02nd speed Rack travel in mm: 8.4...8.6

Del.quantity cm3/: 0.8...1.4 100 s: (0.6...1.6)

cm3 : 0.2 Spread 100 s: (0.4)

GUIDE SLEEVE POSITION Control-lever position

Degree: -3 rpm : 800

Speed Rack travel in mm : 0.30...0.70

Governor spring pre-tension Click setting x : 4.00

FULL LOAD DELIV. AT FULL LOAD STOP

1st version

rpm : 1200 Speed

: 61.5...62.5 Del.quantity 1000 : (59.5...64.5)

: 3.00 cm3 Spread 1000 : (5.00)

RATED SPEED

1st version Control lever

position degrees: 101...109

Testing:

1st rack travel in: 9.40 Speed rpm : 1240...1250

2nd rack travel in: 4.00

rpm : 1295...1325 Speed

4th rack travel in: 1460

rpm : 0.30...1.40 Speed LOW IDLE 1 Control lever position degrees: 76...84 Setting point w/out bumper spring rpm : 325 Speed Rack travel in mm: 8.5 Speed rpm : 325
Rack travel in mm : 8.40...8.60
Rack travel in mm : 2.00 rpm : 450...510 Speed SET IDLE AUXILIARY SPRING Rack travel in mm: 2.00 TORQUE CONTROL Torque control curve - 1st version 1st speed rpm : 1200 Rack travel in m: 10.40...10.50 2nd speed rpm : 500
Rack travel in m: 11.10...11.30
4th speed rpm : 1000
Rack travel in m: 10.80...11.00 FUEL DELIVERY CHARACTERISTICS 1st version Speed rpm: 800
Del.quantity cm3/: 54.0...56.0
1000 s: (51.5...58.5)
Speed rpm: 1000
Del.quantity cm3/: 60.0...62.0
1000 s: (57.5...64.5) BREAKAWAY 1st version 1mm rack travel less than full load rack tr: 9.40 rpm : 1240...1250 Speed STARTING FUEL DELIVERY Speed : 100 rpm Del.quantity cm3/: 115.0...125.0 1000 s: (112.0...128.0) Rack travel in mm : 17.60...18.00

Remarks:

Note remarks

Test sheet : DAF 6,2 010 Edition : 30.08.91

Replaces

: ISO-4113 Test oil

: 0 400 876 332Z Combination no.

Injection pump

Pump designation : PES6A95D32ORS2693 EP type number : 0 410 896 914

Governor

Governor design. : RSV300...1300A0C2206

: 0 420 233 204 Governer no.

Cust. part no. : 0082297/0

Customer-spec. information : DAF Customer

: DNTD 620 Engine

: 110.0 1st version kW : 2600 Rated speed

TEST BENCH REQUIREMENTS

Test oil

inlet temp. °C : 38...42

Overflow valve

: 1 417 413 000

Inlet press., bar: 1.50

Test nozzle holder

: 0 681 343 009 assembly

Opening

: 172...175 pressure, bar

Test Lines : 1 680 750 015

Outside diameter

x Wall thickness

: 6.00x1.50x600 x Length mm

(A) Injection pump setting values Insp. values in parentheses Set equal delivery quant.

per values

BEGINNING OF DELIVERY

Test pressure, bar: 25...27

Prestroke mm : 2.00...2.10 : (1.95...2.15) Rack travel in mm : 7.50...10.50 Firing order : 1-5-3-6-2-4

: 0-60-120-180-240-300 Phasing

Tolerance + - ° : 0.50 (0.75)

Time to cyl. no. : 1

BEGINNING OF DELIVERY DIFFERENCE

betw. rack trav. m: 8.50...9.50

& maximum rack tra: 21.00 Difference ° CS : 2.50...3.50

BASIC SETTING

1st speed rpm : 650

Rack travel in mm : 10.60...10.70

Del.quantity cm3/: 6.0...6.1

100 s: (5.8...6.3)

cm3 : 0.3Spread

100 s: (0.6)

2nd speed rpm : 300.0 Rack travel in mm : 6.3...6.5 Del.quantity cm3/: 0.7...1.1

100 s: (0.4...1.3) cm3 : 0.3 Spread

100 s: (0.5)

GUIDE SLEEVE POSITION

Control-lever position Degree: -3

rpm : 800 Speed

Rack travel in mm : 0.30...0.70

Governor spring pre-tension Click setting x : 4.25

FULL LOAD DELIV. AT FULL LOAD STOP

1st version

rpm : 650 Speed

: 60.5...61.5 Del.quantity 1000 : (58.5...63.5)

cm3 : 3.50 Spread

1000 : (6.00)

RATED SPEED

1st version Control lever

position degrees: 89...97

Testing:

1st rack travel in: 9.10 Speed rpm : 1070...1080

2nd rack travel in: 4.00

rpm : 1110...1140 Speed

3rd rack travel in: 4.00

Speed rpm : 1150...1180

4th rack travel in: 1290

rpm : 0.30...1.40 Speed

LOW IDLE 1

Control lever

position degrees: 68...76

Setting point w/out bumper spring

Speed rpm : 300 Rack travel in mm : 5.9

Testing:

rpm : 100 Speed

Minimum rack trave: 19.50

rpm : 300

Rack travel in mm : 6.30...6.50 Rack travel in mm : 2.00

rpm : 560...620 Speed

TORQUE CONTROL

Torque control curve - 1st version

1st speed rpm : 1025

Rack travel in m: 10.10...10.30

2nd speed rpm : 500
Rack travel in m: 10.60...10.70
4th speed rpm : 875
Rack travel in m: 10.40...10.50

FUEL DELIVERY CHARACTERISTICS

1st version

rpm : 1025 Speed

Del.quantity cm3/: 61.0...63.0 1000 s: (58.5...65.5)

BREAKAWAY

1st version

1mm rack travel less than

full load rack to: 9.10

rpm : 1070...1080 Speed

STARTING FUEL DELIVERY

rpm : 100 Speed

Del.quantity cm3/: 130.0...145.0 1000 s: (127.0...148.0)

Rack travel in mm : 19.50...21.00

LOW IDLE

Speed rpm : 300
Rack travel in mm : 6.30...6.50
Del.quantity cm3/ : 7.0...11.0
1000 s: (4.5...13.5)
Spread cm3 : 3.50
1000 s: (5.50)

Remarks:

J13

Note remarks

Test sheet : MB 6,0 c 2 Edition : 21.08.91 : 3.3.89 Replaces

Test oil : ISO-4113

: 0 400 876 335 Combination no.

Injection pump

Pump designation : PES6A90D410RS2710 EP type number : 0 410 896 082

Governor

Governor design. : RSV350...1200A1C1154

: 0 420 232 468 Governer no.

Customer-spec. information

: DAIMLER-BENZ Customer

: OM 366 Engine

: 74.0 1st version kW : 2400 Rated speed

TEST BENCH REQUIREMENTS

Test oil

inlet temp. °C : 38...42

Overflow valve

: 1 417 413 000

Inlet press., bar: 1.50

Test nozzle holder

: 0 681 343 009 assembly

Opening

pressure, bar : 172...175

Test Lines : 1 680 750 015

Outside diameter

x Wall thickness : 6.00x1.50x600 x Length mm

(A) Injection pump setting values Insp. values in parentheses Set equal delivery quant.

per values

BEGINNING OF DELIVERY Test pressure, bar: 25...27

: 2.25...2.35 : (2.20...2.40) Prestroke mm

Rack travel in mm : 9.00...12.00 : 1-5-3-6-2-4 Firing order

: 0-60-120-180-240-300 Phasing

Tolerance + - ° : 0.50 (0.75)

BASIC SETTING

rpm: 1200 1st speed

Rack travel in mm : 9.30...9.40

Del.quantity cm3/: 5.1...5.2

100 s: (4.9...5.4)

cm3 : 0.3Spread

100 s: (0.4)

2nd speed rpm : 370.0 Rack travel in mm : 7.9...8.5

Del.quantity cm3/: 1.0...1.2 100 s: (0.8...1.4)

cm3 : 0.2 Spread 100 s: (0.4)

GUIDE SLEEVE POSITION Control-lever position

Degree: -3 rpm : 800

Rack travel in mm : 0.30...0.70

Governor spring pre-tension Click setting x : 5.00

FULL LOAD DELIV. AT FULL LOAD STOP

1st version

Speed

rpm : 1200 Speed

: 51.0...52.0 Del.quantity 1000 : (49.0...54.0)

: 3.00 Spread cm3

1000 : (4.50)

RATED SPEED

1st version Control lever

position degrees: 109...117

Testing:

1st rack travel in: 8.30

rpm : 1240...1245 Speed

2nd rack travel in: 4.00

rpm : 1267...1280 Speed

3rd rack travel in: 4.00

rpm : 1300...1330 Speed 4th rack travel in: 1400

rpm : 0.30...1.40 Speed 5th rack travel in: 1255...1265

rpm : 8.30Speed

LOW IDLE 1 Control lever

position degrees: -3

Setting point w/out bumper spring

rpm : 370 Speed Rack travel in mm: 8.2

Testing:

Speed rpm : 100 Minimum rack trave: 19.50

Speed rpm : 370
Rack travel in mm : 8.10...8.30
Rack travel in mm : 2.00
Speed rpm : 460...520

TORQUE CONTROL

Torque control curve - 1st version

1st speed rpm : 1200

Rack travel in m: 9.30...9.40

2nd speed rpm : 600 Rack travel in m: 10.00...10.20

3rd speed rpm : 900

Rack travel in m: 9.80...10.10

FUEL DELIVERY CHARACTERISTICS

1st version

: 600 Speed rpm

Del.quantity cm3/: 41.0...43.0 1000 s: (38.5...45.5)

rpm : 900 Speed

Del.quantity cm3/: 46.0...49.0 1000 s: (43.5...51.5)

BREAKAWAY

1st version

1mm rack travel less than

full load rack tr: 8.30

rpm : 1240...1245 Speed

STARTING FUEL DELIVERY

rpm : 100

Del.quantity cm3/: 85.0...95.0 1000 s: (82.0...98.0)

Rack travel in mm : 16.80...17.20

LOW IDLE

Speed rpm: 370
Rack travel in mm: 7.90...8.50
Del.quantity cm3/: 10.0...12.0

1000 s: (8.0...14.0)

cm3 : 2.50 Spread 1000 s: (4.50)

Remarks:

APPLICATION

Unimog

J15

Note remarks

: DEE 7,7 e 1 : 21.08.91 Test sheet Edition : 17.7.90 Replaces

: ISO-4113 Test oil

Combination no. : 0 400 876 372

Injection pump

Pump designation : PES6A100D410RS2764-1

EP type number : 0 410 806 007

Governor

Governor design. : RSV600...1100A2C2161

-7L

: 0 420 232 540 Governer no.

Customer-spec. information

: JOHN DEERE Customer

: 6466AZOO3 Engine

: 164.0 1st version kW : 1100 Rated speed

TEST BENCH REQUIREMENTS

Test oil

inlet temp. °C : 38...42

Overflow valve

: 1 457 413 010

Inlet press., bar: 1.50

Overflow

quantity min. 1/h: 190...200

Test nozzle holder

: 1 688 901 101 assembly

Opening 1

: 207...210 pressure, bar

Orifice plate

: 0,6 diameter mm

: 1 680 750 008 Test lines

Outside diameter x Wall thickness

: 6.00X2.00X600 x Length mm

(A) Injection pump setting values Insp. values in parentheses

Set equal delivery quant. per values ____

116

BEGINNING OF DELIVERY

Test pressure, bar: 27...29

: 2.45...2.55 Prestroke mm

: (2.40...2.60)

Rack travel in mm : 10.50

: 1-5-3-6-2-4 Firing order

: 0-60-120-180-240-300 Phasing

Tolerance + - ° : 0.50 (0.75)

Time to cyl. no. : 1

BASIC SETTING

rpm: 1100 1st speed

Rack travel in mm : 13.10...13.20

Del.quantity cm3/: 12.6...12.8

100 s: (12.4...13.0)

Spread cm3 : 0.4

100 s: (0.6)

2nd speed rpm : 600.0

Rack travel in mm: 6.0...6.2 Del.quantity cm3/: 1.7...2.1

100 s: (1.5...2.3)

Spread cm3 : 0.6

100 s: (0.8)

GUIDE SLEEVE POSITION

Control-lever position

Degree: -3

Speed rpm: 800 Rack travel in mm: 0.30...0.70

Governor spring pre-tension

Click setting x : 2.50

FULL LOAD DELIV. AT FULL LOAD STOP

1st version

rpm : 1100 Speed Aneroid pressure h: 900

Del.quantity : 120.5...130.5)

cm3 : 4.00 Spread

1000 : (6.50)

RATED SPEED

1st version

Control Lever

position degrees: 37...45

Testina:

1st rack travel in: 12.10 Speed rpm : 1145...1155

2nd rack travel in: 4.00

rpm : 1195...1205 Speed

3rd rack travel in: 4.00

rpm : 1215...1245 Speed

4th rack travel in: 1350

Speed rpm : 0.30...1.40

LOW IDLE 1

Control lever

position degrees: 19...27 Setting point w/out bumper spring

rpm : 600

Rack travel in mm: 5.6

Testina:

: 100 Speed rom

Minimum rack trave: 19.00

rpm : 600

Rack travel in mm : 6.00...6.20

Aneroid/Altitude Compensator Test

1st version

Setting

Speed : 500 rpm

Pressure hPa : -

: 9.30...9.50 Rack travel mm

Measurement

Speed $1/\min : 500$

1st pressure hPa : 175 Rack travel in m: 10.30...10.40

2nd pressure hPa : 280

Rack travel in m: 12.10...12.50

3rd pressure hPa : 900

Rack travel in m: 13.10...13.20

FUEL DELIVERY CHARACTERISTICS

1st version

Aneroid pressure h: -

rpm_ : 500 Speed

Del.quantity cm3/: 68.0...72.0 1000 s: (66.0...74.0)

BREAKAWAY

1st version

1mm rack travel less than

full load rack tr: 12.10

rpm : 1145...1155 Speed

STARTING FUEL DELIVERY

rpm : 100 Speed

Del.quantity cm3/: 180.0...200.0

1000 s: (175.0...205.0)

LOW IDLE

rpm : 600 Speed

Rack travel in mm : 6.00...6.20 Del.quantity cm3/: 17.0...21.0 1000 s: (15.0...23.0)

cm3 : 6.00Spread

1000 s: (8.00)

Remarks:

: JOHN DEERE # RE44661

Start-of-delivery mark at control-rod travel 10.5 mm and 15° after start of

delivery.

Starting/full-load transition speed from holding magnet = 450 1/min.

Note remarks

: DEE 7,7 e 2 : 21.08.91 : 17.9.90 Test sheet Edition Replaces : ISO-4113 Test oil

Combination no. : 0 400 876 373

Injection pump

Pump designation : PES6A100D410RS2764-1

EP type number : 0 410 806 007

Governor

: RSV600...1100A2C2161 Governor design.

-8L

: 0 420 232 541 Governer no.

Customer-spec. information : JOHN DEERE Customer

: 6466AZOO4 Engine

: 150.0 1st version kW : 2200 Rated speed

TEST BENCH REQUIREMENTS

Test oil

inlet temp. °C : 38...42

Overflow valve

: 1 457 413 010

Inlet press., bar: 1.50

Overflow

quantity min. 1/h: 190...200

Test nozzle holder

: 1 688 901 101 assembly

Opening 1 4 1

: 207...210 pressure, bar

Orifice plate

diameter mm : 0,6

: 1 680 750 008 Test lines

Outside diameter

x Wall thickness

x Length mm : 6.00X2.00X600

(A) Injection pump setting values Insp. values in parentheses Set equal delivery quant.

per values ____

BEGINNING OF DELIVERY

Test pressure, bar: 27...29

Prestroke mm : 2.45...2.55 : (2.40...2.60) Rack travel in mm : 10.50

: 1-5-3-6-2-4 Firing order

: 0-60-120-180-240-300 Phasina

Tolerance $+ - \circ : 0.50 (0.75)$

Time to cyl. no. : 1

BASIC SETTING

rpm: 1100 1st speed

Rack travel in mm : 12.40...12.50

Del.quantity cm3/: 11.7...11.9

100 s: (11.5...12.1)

cm3 : 0.4Spread

100 s: (0.6)

rpm : 600.02nd speed

Rack travel in mm: 6.3...6.5

Del.quantity cm3/: 1.9...2.3 100 s: (1.7...2.5)

cm3 : 0.6 Spread 100 s: (0.8)

GUIDE SLEEVE POSITION Control-lever position

> Degree: -3 rpm : 800

Rack travel in mm : 0.30...0.70

Governor spring pre-tension Click setting x : 4.00

FULL LOAD DELIV. AT FULL LOAD STOP

1st version

rpm : 1100 Speed Aneroid pressure h: 900

Del.quantity : 717.3...121.5)

: 4.00 Spread cm3 1000 : (6.50)

RATED SPEED

1st version

J18

Control lever

position degrees: 41...49

Testina:

1st rack travel in: 11.40

rpm : 1155...1165 Speed

2nd rack travel in: 4.00

rpm : 1220...1230 Speed

3rd rack travel in: 4.00

rpm : 1220...1250 Speed

4th rack travel in: 1300

rpm : 0.30...1.40 Speed

LOW IDLE 1

Control Lever

position degrees: 22...30

Setting point w/out bumper spring

rpm : 600 Rack travel in mm: 5.9

Testing:

: 100 Speed rom

Minimum rack trave: 19.00

: 600 rpm

Rack travel in mm : 6.30...6.50

TORQUE CONTROL

Torque control curve - 1st version

rpm : 1100 1st speed

Rack travel in m: 12.40...12.50

rpm : 750 2nd speed

Rack travel in m: 14.00...14.20

Aneroid/Altitude

Compensator Test

1st version

Settina

: 500 Speed man

hPa : -Pressure

: 9.60...9.80 Rack travel mm

Measurement

1/min : 500Speed

1st pressure hPa : 95
Rack travel in m: 10.60...10.70
2nd pressure hPa : 200
Rack travel in m: 12.60...13.00

3rd pressure hPa : 900

Rack travel in m: 14.00...14.20

FUEL DELIVERY CHARACTERISTICS

1st version

Aneroid pressure h: 900

Speed

rpm

Del.quantity cm3/: 140.5...144.5 1000 s: (138.5...146.5)

Aneroid pressure h: -

Speed rpm: 500 Del.quantity cm3/: 70.5...74.5 1000 s: (68.5...76.5)

BREAKAWAY

1st version

1mm rack travel less than

full load rack tr: 11.40

rpm : 1155...1165 Speed

STARTING FUEL DELIVERY

: 100 Speed rpm

Del.quantity cm3/: 180.0...200.0 1000 s: (175.0...205.0)

LOW IDLE

Speed rpm : 600 Rack travel in mm : 6.30...6.50

Del.quantity cm3/: 19.0...23.0 1000 s: (17.0...25.0)

cm3 : 6.00Spread

1000 s: (8.00)

Remarks:

: JOHN DEERE # RE44662

Start-of-delivery mark = 15.5° after

start of delivery cyl. 1.

Starting/full-load transition speed

from holding magnet = 450 1/min.

Adjustment without torque-control spring retainer with 0,5 mm less control-rod travel. Increase in

full-load delivery with torque-control

spring retainer.

Note remarks

: DAF 6,2 q 5 Test sheet : 30.08,91 Edition

Replaces Test oil

: ISO-4113

: 0 400 876 375Y Combination no.

Injection pump

Pump designation : PES6A95D32ORS2693 EP type number : 0 410 896 914

Governor

: RSV300...1300A0c2251 Governor design.

: 0 420 233 272 Governer no.

: 1207950/0 Cust. part no.

Customer spec. information Customer : DAF

: NT 116 Engine

1st version kW : 119.0 Rated speed : 2600

TEST BENCH REQUIREMENTS

Test oil

inlet temp. °C : 38...42

Overflow valve

: 1 417 413 000

Inlet press., bar: 1.50

Test nozzle holder

assembly : 0 681 343 009

Opening |

pressure, bar : 172...175

Test Lines : 1 680 750 015

Outside diameter x Wall thickness

: 6.00x1.50x600 x Length mm

(A) Injection pump setting values Insp. values in parentheses Set equal delivery quant.

per values

BEGINNING OF DELIVERY

Test pressure, bar: 25...27

: 2.00...2.10 Prestroke mm

: (1.95...2.15) Rack travel in mm : 7.50...10.50

: 1-5-3-6-2-4 Firing order

Phasing : 0-60-120-180-240-300

Tolerance $+ - ^{\circ} : 0.50 (0.75)$

Time to cyl. no. : 1

BEGINNING OF DELIVERY DIFFERENCE

betw. rack trav. m: 8.50...9.50 & maximum rack tra: 21.00

Difference ° CS : 2.50...3.50

BASIC SETTING

1st speed rpm: 650

Rack travel in mm : 10.50...10.80

Del.quantity cm3/: 6.1...6.2

100 s: (5.9...6.4)

cm3 : 0.3Spread

100 s: (0.6)

rpm : 300.02nd speed

Rack travel in mm: 6.0...6.2 Del.quantity cm3/: 0.7...1.1

100 s: (0.4...1.3)

cm3 : 0.3Spread

100 s: (0.5)

GUIDE SLEEVE POSITION

Control-lever position Degree: -3

rpm : 800

Rack travel in mm : 0.30...0.70

Governor spring pre-tension Click setting x : 5.75

FULL LOAD DELIV. AT FULL LOAD STOP

1st version

rpm : 650 Speed

: 61.5...62.5 Del.quantity

1000 : (59.5...64.5)

: 3.50 Spread cm3

1000 : (6.00)

RATED SPEED

1st version Control Lever position degrees: 95...103 Testing: 1st rack travel in: 9.00 rpm : 1070...1080 Speed 2nd rack travel in: 4.00 rpm : 1120...1150 Speed 3rd rack travel in: 4.00 rpm : 1150...1180 Speed 4th rack travel in: 1310 rpm : 0.30...1.40Speed LOW IDLE 1 Control lever position degrees: 74...82 Setting point w/out bumper spring rpm : 300 Rack travel in mm: 6.1 Testing: : 100 Speed rpm Minimum rack trave: 19.50 rpm : 300 Speed Rack travel in mm : 6.00...6.20 Rack travel in mm : 2.00 Speed rpm : 570...630 TORQUE CONTROL Torque control curve - 1st version rpm : 1025 1st speed Rack travel in m: 10.00...10.10 2nd speed rpm : 500 Rack travel in m: 11.00...11.10 3rd speed rpm : 950 Rack travel in m: 10.20...10.40 4th speed rpm : 850 Rack travel in m: 10.70...10.80 FUEL DELIVERY CHARACTERISTICS 1st version : 1025 Speed rpm Del.quantity cm3/: 60.0...62.0 1000 s: (57.5...64.5) **BREAKAWAY** 1st version 1mm rack travel less than full load rack tr: 9.00 rpm : 1070...1080 Speed LOW IDLE

: 300

man

Speed

J21

Rack travel in mm : 6.00...6.20 Del.quantity cm3/ : 7.0...11.0 1000 s: (4.5...13.5) Spread cm3 : 3.50 1000 s: (5.50)

Remarks:

:

Note remarks

Test sheet : DAF 6,2 q 6 Edition : 30.08.91

Replaces : -

Test oil : ISO-4113

Combination no. : 0 400 876 375Z

Injection pump

Pump designation : PES6A95D32ORS2693 EP type number : 0 410 896 914

Governor

Governor design. : RSV300...1300A0C2251

R

Governer no. : 0 420 233 272

Cust. part no. : 1209590

Customer—spec. information Customer : DAF

Engine : NT 116

1st version kW : 119.0 Rated speed : 2600

TEST BENCH REQUIREMENTS

Test oil

inlet temp. °C : 38...42

Overflow valve

: 1 417 413 000

Inlet press., bar: 1.50

Test nozzle holder

assembly : 0 681 343 009

Openina

pressure, bar : 172...175

Test Lines : 1 680 750 015

Outside diameter

x Wall thickness

x Length mm : 6.00X1.50X600

(A) Injection pump setting values Insp. values in parentheses Set equal delivery quant.

per values _

BEGINNING OF DELIVERY

Test pressure, bar: 25...27

Prestroke mm : 2.00...2.10 : (1.95...2.15)

Rack travel in mm : 7.50...10.50 Firing order : 1-5-3-6-2-4

Phasing : 0-60-120-180-240-300

Tolerance $+ - ^{\circ} : 0.50 (0.75)$

Time to cyl. no. : 1

BEGINNING OF DELIVERY DIFFERENCE

betw. rack trav. m: 8.50...9.50 & maximum rack tra: 21.00 Difference ° CS : 2.50...3.50

BASIC SETTING

1st speed rpm: 850

Rack travel in mm : 11.50...11.60

Del.quantity cm3/: 7.5...7.6

100 s: (7.3...7.8)

Spread cm3 : 0.3

100 s: (0.6)

2nd speed rpm : 300.0 Rack travel in mm : 6.0...6.2 Del.quantity cm3/: 0.7...1.1

100 s: (0.4...1.3)

Spread cm3 : 0.3 100 s: (0.5)

GUIDE SLEEVE POSITION Control-lever position

Degree: -3 rpm : 800

Speed rpm : 800 Rack travel in mm : 0.30...0.70

Governor spring pre-tension Click setting x : 4.75

FULL LOAD DELIV. AT FULL LOAD STOP

1st version

Speed rpm: 850

Del.quantity : 75.5...76.5 1000 : (73.5...78.5)

Spread cm3 : 3.50

1000 : (6.00)

RATED SPEED

1st version Control Lever position degrees: 95...103 Testing: 1st rack travel in: 10.50 Speed rpm : 1185...1195 2nd rack travel in: 4.00 Speed rpm : 1250...1280 3rd rack travel in: 4.00 rpm : 1280...1310 Speed 4th rack travel in: 1440 rpm : 0.30...1.40Speed LOW IDLE 1 Control Lever position degrees: 70...78 Setting point w/out bumper spring Speed rpm : 300 Rack travel in mm : 5.6 Testing: Speed rpm: 100 Minimum rack trave: 19.50 Speed rpm : 300 Rack travel in mm : 6.00...6.20 Rack travel in mm : 2.00 rom : 550...610 Speed TORQUE CONTROL Torque control curve - 1st version 1st speed rpm : 1140
Rack travel in m: 11.40...11.50
2nd speed rpm : 500
Rack travel in m: 11.50...11.60 BREAKAWAY 1st version 1mm rack travel less than full load rack tr: 10.50 rpm : 1185...1195 Speed LOW IDLE Speed rpm : 300
Rack travel in mm : 6.00...6.20
Del.quantity cm3/: 7.0...11.0
1000 s: (4.5...13.5)
Spread cm3 : 3.50 1000 s: (5.50) Remarks:

Note remarks

: DEE 7,7 d 5 Test sheet : 21.08.91 Edition : 7.1.91 Replaces

: ISO-4113 Test oil

Combination no. : 0 400 876 382

Injection pump

Pump designation : PES6A100D410RS2762-1

EP type number : 0 410 806 008

Governor

: RSV475...1100A2C2204 Governor design.

-7L

: 0 420 232 550 Governer no.

Customer spec. information : JOHN DEERE Customer

: 6076ADW03 Engine

1st version kW : 146.0 Rated speed : 2200

TEST BENCH REQUIREMENTS

Test oil

inlet temp. °C : 38...42

Overflow valve

: 1 457 413 010

Inlet press., bar: 1.50

Overflow

quantity min. 1/h: 190...200

Test nozzle holder

: 1 688 901 101 assembly

Opening

: 207...210 pressure, bar

Orifice plate

diameter mm : 0,6

Test lines : 1 680 750 008

Outside diameter

x Wall thickness

x Length mm : 6.00X2.00X600

(A) Injection pump setting values Insp. values in parentheses Set equal delivery quant.

per values _

BEGINNING OF DELIVERY

Test pressure, bar: 27...29

: 2.95...3.05 Prestroke mm : (2.90...3.10)

Rack travel in mm: 10.50

: 1-5-3-6-2-4 Firing order

: 0-60-120-180-240-300 Phasing

Tolerance + - ° : 0.50 (0.75)

Time to cyl. no. : 1

BASIC SETTING

rpm: 1100 1st speed

Rack travel in mm : 11.60...11.70

Del.quantity cm3/: 11.2...11.4

100 s: (11.0...11.6)

Spread cm3 : 0.4

100 s: (0.6)

rpm : 475.0 2nd speed Rack travel in mm : 5.0...5.2 Del.quantity cm3/: 1.8...2.2

100 s: (1.6...2.5) cm3 : 0.6Spread

100 s: (0.8)

GUIDE SLEEVE POSITION Control-lever position

> Degree: -3 rpm : 800

Speed Rack travel in mm : 0.30...0.70

Governor spring pre-tension Click setting x : 5.00

FULL LOAD DELIV. AT FULL LOAD STOP

1st version

rpm : 1100 Speed

: 112.0...114.0 Del.quantity 1000 : (110.0...116.0)

: 4.00 Spread cm3 1000 : (6.50)

RATED SPEED

1st version

Control Lever

position degrees: 42...50

Testing:

1st rack travel in: 10.70 Speed rpm: 1150...1160 2nd rack travel in: 4.00

Speed rpm: 1220...1230 3rd rack travel in: 4.00

rpm : 1210...1240 Speed

4th rack travel in: 1300

rpm : 0.30...1.40 Speed

LOW IDLE 1

Control Lever

position degrees: 19...27

Setting point w/out bumper spring

Speed rpm : 475

Rack travel in mm: 4.6

Testing:

Speed rpm : 100 Minimum rack trave: 19.00

: 475 rpm Rack travel in mm : 5.00...5.20

TORQUE CONTROL

Torque control curve - 1st version

rpm : 1100 1st speed

Rack travel in m: 11.60...11.70

2nd speed rpm : 700

Rack travel in m: 13.60...13.80

FUEL DELIVERY CHARACTERISTICS

1st version

Speed rpm : 700 Del.quantity cm3/ : 144.0...148.0 1000 s: (142.0...150.0)

BREAKAWAY

1st version

1mm rack travel less than

full load rack tr: 10.70

rpm : 1150...1160 Speed

STARTING FUEL DELIVERY

: 100 Speed rpm

Del.quantity cm3/: 100.0...120.0

1000 s: (95.0...125.0)

LOW IDLE

rpm : 475 Speed

J25

Rack travel in mm : 5.00...5.20 Del.quantity cm3/: 18.5...22.5

1000 s: (16.0...25.0)

cm3 : 6.00 Spread 1000 s: (8.00)

Remarks:

: JOHN DEERE # RE47357

Start-of-delivery mark = 13,5° after

start of delivery cyl. 1.

Starting/full-load transition speed from holding magnet = 450 1/min.

Adjustment without torque-control spring retainer with 0,5 mm less control-rod travel. Increase in full-load delivery with torque-control

spring retainer.

Note remarks

: DAF 6,2 011 Test sheet Edition : 30.08.91

Replaces

Test oil : ISO-4113

Combination no. : 0 400 876 390V

Injection pump

Pump designation : PES6A95D32ORS2693 : 0 410 896 914 EP type number

Governor

: RSV250...750A7C2206-Governor design.

3R

: 0 420 233 283 Governer no.

: 0763023/0 Cust. part no.

Customer-spec. information : DAF Customer

: DNDT 620 Engine

TEST BENCH REQUIREMENTS

Test oil

inlet temp. °C : 38...42

Overflow valve

: 1 417 413 000

Inlet press., bar: 1.50

Test nozzle holder

: 0 681 343 009 assembly

Openina

pressure, bar : 172...175

: 1 680 750 015 Test Lines

Outside diameter x Wall thickness

: 6.00X1.50X600 x Length mm

(A) Injection pump setting values Insp. values in parentheses Set equal delivery quant.

per values

BEGINNING OF DELIVERY Test pressure, bar: 25...27

: 2.00...2.10 Prestroke mm

: (1.95...2.15)

Rack travel in mm : 9.00...12.00

: 1-5-3-6-2-4 Firing order

Phasing : 0-60-120-180-240-300

Tolerance + - ° : 0.50 (0.75)

Time to cyl. no. : 1

BEGINNING OF DELIVERY DIFFERENCE

betw. rack trav. m: 8.50...9.50

& maximum rack tra: 21.00

: 2.50...3.50 Difference ° CS

BASIC SETTING

1st speed rpm: 700

Rack travel in mm : 13.70...13.80

Del.quantity cm3/: 10.2...10.3

100 s: (10.0...10.5)

cm3 : 0.3Spread

100 s: (0.6)

2nd speed rpm : 300.0

Rack travel in mm : 6.4...6.6 Del.quantity cm3/: 0.7...1.1

100 s: (0.4...1.3)

cm3 : 0.3 100 s: (0.5) Spread

GUIDE SLEEVE POSITION Control-lever position

Degree: -3

rpm : 800 Speed

Rack travel in mm: 0.30...0.70

Governor spring pre-tension

Click setting x : 5.75

FULL LOAD DELIV. AT FULL LOAD STOP

1st version

rpm : 700 Speed

: 102.5...103.5 Del.quantity

1000 : (100.5...105.5)

cm3 : 3.50 Spread

1000 : (6.00)

RATED SPEED

1st version

Control lever

position degrees: 104...112

J26

Testing:
1st rack travel in: 12.70
Speed rpm: 895...900
2nd rack travel in: 4.00
Speed rpm: 939...954
4th rack travel in: 1090
Speed rpm: 0.30...1.40

LOW IDLE 1
Control lever
position degrees: 73...81
Setting point w/out bumper spring
Speed rpm: 300
Rack travel in mm: 6.5

Testing:

Speed rpm : 100
Speed rpm : 300
Rack travel in mm : 6.40...6.60
Rack travel in mm : 2.00
Speed rpm : 310...370

SET IDLE AUXILIARY SPRING Rack travel in mm : 2.00

BREAKAWAY

1st version 1mm rack travel less than

full load rack tr: 12.70 Speed rpm : 895...900

STARTING FUEL DELIVERY

Speed rpm : 100 Rack travel in mm : 19.50...21.00

LOW IDLE

Speed rpm : 300 Rack travel in mm : 6.40...6.60 Del.quantity cm3/ : 7.0...11.0 1000 s: (4.5...13.5)

Spread cm3 : 3.50 1000 s: (5.50)

Remarks:

APPLICATION

Generator

Note remarks

Test sheet

: DAF 6,2 012

Edition

: 30.08.91

Replaces

Test oil

: ISO-4113

Combination no. : 0 400 876 390W

Injection pump

Pump designation : PES6A95D32ORS2693

EP type number

: 0 410 896 914

Governor

Governor design.

: RSV250...750A7C2206-

Governer no.

: 0 420 233 283

Cust. part no.

: 0763022/0

Customer-spec. information

Customer

: DAF

Engine

: DNDT 620

TEST BENCH REQUIREMENTS

Test oil

inlet temp. °C

: 38...42

Overflow valve

: 1 417 413 000

Inlet press., bar: 1.50

Test nozzle holder

assembly

: 0 681 343 009

Opening

pressure, bar

: 172...175

Test Lines

: 1 680 750 015

Outside diameter

x Wall thickness

x Length mm

: 6.00x1.50x600

(A) Injection pump setting values Insp. values in parentheses Set equal delivery quant.

per values

BEGINNING OF DELIVERY

Test pressure, bar: 25...27

Prestroke mm

: 2.00...2.10

: (1.95...2.15)

Rack travel in mm : 9.00...12.00

J28

Firing order : 1-5-3-6-2-4

Phasing

: 0-60-120-180-240-300

Tolerance + - °

: 0.50 (0.75)

Time to cyi. no. : 1

BEGINNING OF DELIVERY DIFFERENCE

betw. rack trav. m: 8.50...9.50

& maximum rack tra: 21.00 Difference °CS : 2.50...3.50

BASIC SETTING

1st speed

rpm: 700

Rack travel in mm : 13.70...13.80

Del.guantity cm3/: 10.2...10.3

100 s: (10.0...10.5)

cm3 : 0.3

100 s: (0.6)

2nd speed rpm : 300.0Rack travel in mm: 6.4...6.6

Del.quantity cm3/: 0.7...1.1 100 s: (0.4...1.3)

Spread

Spread

cm3 : 0.3 100 s: (0.5)

GUIDE SLEEVE POSITION Control-lever position

Degree: -3

rpm : 800

Speed Rack travel in mm : 0.30...0.70

Governor spring pre-tension Click setting x : 4.50

FULL LOAD DELIV. AT FULL LOAD STOP

1st version

Speed

Spread

rpm : 700

Del.quantity

1000

: 102.5...103.5 : (100.5...105.5)

cm3

: 3.50

1000 : (6.00)

RATED SPEED

1st version

Control lever

position degrees: 91...99

Testing:

1st rack travel in: 12.70 Speed rpm : 745...750

2nd rack travel in: 4.00 rpm : 779...794 Speed

4th rack travel in: 935

rpm : 0.30...1.40Speed

LOW IDLE 1

Control lever

position degrees: 69...77

Setting point w/out bumper spring

rpm : 300 Speed

Rack travel in mm : 6.5 Speed rpm : 300

Rack travel in mm : 6.40...6.60

Rack travel in mm : 2.00 Speed rpm : 300...360

SET IDLE AUXILIARY SPRING Rack travel in mm : 2.00

BREAKAWAY

1st version 1mm rack travel less than

full load rack tr: 12.70

rpm : 745...750 Speed

STARTING FUEL DELIVERY

rpm : 100

Rack travel in mm : 19.50...21.00

LOW IDLE

Speed rpm : 300 Rack travel in mm : 6.40...6.60

Del.quantity cm3/: 7.0...11.0 1000 s: (4.5...13.5) Spread cm3: 3.50

1000 s: (5.50)

Remarks:

APPLICATION

Generator

Note remarks

Test sheet : DAF 6,2 o13

Replaces

Test oil

Combination no. : 0 400 876 390x

Injection pump

: PES6A95D32ORS2693 Pump designation

EP type number

: 0 410 896 914 Governor

: RSV250...750A7C2206-Governor design.

: 0 420 233 283 Governer no.

: 0763008/0 Cust. part no.

Customer—spec. information Customer : DAF

: DNDT 620 Engine

TEST BENCH REQUIREMENTS

Test oil

inlet temp. °C : 38...42

Overflow valve

: 1 417 413 000

Inlet press., bar: 1.50

Test nozzle holder

: 0 681 343 009 assembly

Opening

pressure, bar : 172...175

Test lines : 1 680 750 015

Outside diameter

x Wall thickness

x Length mm : 6.00x1.50x600

(A) Injection pump setting values Insp. values in parentheses Set equal delivery quant.

per values

BEGINNING OF DELIVERY

Test pressure, bar: 25...27

: 2.00...2.10 Prestroke mm

: (1.95...2.15)

Rack travel in mm : 9.00...12.00

: 30.08.91 Edition

: ISO-4113

BEGINNING OF DELIVERY DIFFERENCE

Time to cyl. no. : 1

betw. rack trav. m: 8.50...9.50

& maximum rack tra: 21.00

Difference ° CS : 2.50...3.50

BASIC SETTING

Firing order

Tolerance + - °

Phasing

rpm: 700 1st speed

Rack travel in mm : 13.20...13.30

Del.quantity cm3/: 9.5...9.6

100 s: (9.3...9.8)

: 1-5-3-6-2-4

: 0-60-120-180-240-300

: 0.50 (0.75)

Spread cm3 : 0.3

100 s: (0.6)

rpm : 300.02nd speed Rack travel in mm : 6.4...6.6 Del.quantity cm3/: 0.7...1.1

100 s: (0.4...1.3)

Spread cm3 : 0.3100 s: (0.5)

GUIDE SLEEVE POSITION Control-lever position

Degree: -3 rpm : 800 Speed

Rack travel in mm : 0.30...0.70

Governor spring pre-tension Click setting x : 5.75

FULL LOAD DELIV. AT FULL LOAD STOP

1st version

rpm : 700 Speed

Speeu Del.quantity 1000 95.5...96.5 (93.5...98.5)

3.50

Spread cm3 : (6.00)

1000

RATED SPEED

1st version

Control lever

position degrees: 104...112

K02

Testing: 1st rack travel in: 12.20 rpm : 859....900 Speed 2nd rack travel in: 4.00 rpm : 936...951 Speed 4th rack travel in: 1090 rpm : 0.30...1.40 Speed LOW IDLE 1 Control Lever position degrees: 73...81 Setting point w/out bumper spring rpm : 300 Speed Rack travel in mm: 6.5 : 300 Speed rpm Rack travel in mm : 6.40...6.60 Rack travel in mm : 2.00 : 310...370 Speed rom SET IDLE AUXILIARY SPRING Rack travel in mm: 2.00 **BREAKAWAY** 1st version 1mm rack travel less than full load rack tr: 12.20 rpm : 895...900 Speed STARTING FUEL DELIVERY Speed rpm : 100 Rack travel in mm : 19.50...21.00 LOW IDLE rpm : 300 Speed Rack travel in mm : 6.40...6.60 Del.quantity cm3/: 7.0...11.0 1000 s: (4.5...13.5) cm3 : 3.50 Spread 1000 s: (5.50) Remarks: APPLICATION

Generator

Note remarks

: DAF 6,2 014 Test sheet : 30.08.91 Edition

Replaces

Test oil : ISO-4113

: 0 400 876 390Y Combination no.

Injection pump

Pump designation : PES6A95D32ORS2693

EP type number : 0 410 896 914

Governor

Governor design. : RSV250...750A7C2206-

: 0 420 233 283 Governer no.

Cust. part no. : 0763007/0

Customer-spec. information Customer : DAF

: DNDT 620 Engine

TEST BENCH REQUIREMENTS

Test oil

: 38...42 inlet temp. °C

Overflow valve

: 1 417 413 000

Inlet press., bar: 1.50

Test nozzle holder

: 0 681 343 009 assembly

Openina

pressure, bar : 172...175

Test lines : 1 680 750 015

Outside diameter

x Wall thickness

x Length mm : 6.00x1.50x600

(A) Injection pump setting values Insp. values in parentheses Set equal delivery quant.

per values ___

BEGINNING OF DELIVERY

Test pressure, bar: 25...27

: 2.00...2.10 : (1.95...2.15) Prestroke mm

Rack travel in mm : 9.00...12.00

: 0-60-120-180-240-300 Phasing

: 1-5-3-6-2-4

Tolerance $+ - ^{\circ} : 0.50 (0.75)$

Time to cyl. no. : 1

Firing order

BEGINNING OF DELIVERY DIFFERENCE

betw. rack trav. m: 8.50...9.50

& maximum rack tra: 21.00 Difference ° CS : 2.50...3.50

BASIC SETTING

1st speed rpm: 700

Rack travel in mm : 13.20...13.30

Del.quantity cm3/: 9.5...9.6

100 s: (9.3...9.8)

cm3 : 0.3Spread

100 s: (0.6)

rpm : 300.02nd speed Rack travel in mm: 6.4...6.6 Del.quantity cm3/: 0.7...1.1

100 s: (0.4...1.3) cm3 : 0.3Spread

100 s: (0.5)

GUIDE SLEEVE POSITION Control-lever position

Degree: -3

Speed rpm: 800 Rack travel in mm: 0.30...0.70

Governor spring pre-tension Click setting x : 4.50

FULL LOAD DELIV. AT FULL LOAD STOP

1st version

Speed rpm : 700

95.5...96.5 1000 : (93.5...98.5) Del.quantity

: 3.50 Spread cm3

1000 : (6.00)

RATED SPEED

1st version

Control Lever position degrees: 91...99

Testing: 1st rack travel in: 12.20 Speed rpm : 745...750 2nd rack travel in: 4.00 Speed rpm : 777...792 4th rack travel in: 935 Speed rpm : 0.30...1.40LOW IDLE 1 Control lever position degrees: 69...77 Setting point w/out bumper spring rpm : 300 Speed Rack travel in mm: 6.5 Speed : 300 rom Rack travel in mm : 6.40...6.60 Rack travel in mm : 2.00 Speed rpm : 300...360 SET IDLE AUXILIARY SPRING Rack travel in mm: 2.00 **BREAKAWAY** 1st version 1mm rack travel less than full load rack tr: 12.20 rpm : 745...750 Speed STARTING FUEL DELIVERY Speed : 100 rpm Rack travel in mm : 19.50...21.00 LOW IDLE Speed rpm : 300 Rack travel in mm : 6.40...6.60 Del.quantity cm3/: 7.0...11.0 1000 s: (4.5...13.5) : 3.50 Spread cm3 1000 s: (5.50) Remarks: APPLICATION Generator

Note remarks

Test sheet

: DAF 6,2 o15 : 30.08.91

Edition

Replaces

Test oil

: ISO-4113

Combination no.

: 0 400 876 390Z

Injection pump

Pump designation : PES6A95D32ORS2693

EP type number

: 0 410 896 914

Governor

Governor design.

: RSV250...750A7C2206-

Governer no.

: 0 420 233 283

Cust. part no.

: 0763006/1

Customer-spec. information

Customer

: DAF

Engine

: DNDT 620

TEST BENCH REQUIREMENTS

Test oil

inlet temp. °C

: 38...42

Overflow valve

: 1 417 413 000

Inlet press., bar: 1.50

Test nozzle holder

assembly

: 0 681 343 009

Opening

pressure, bar

: 172...175

Test Lines

: 1 680 750 015

Outside diameter

x Wall thickness

x Length mm

: 6.00X1.50X600

(A) Injection pump setting values Insp. values in parentheses Set equal delivery quant.

per values ____

BEGINNING OF DELIVERY

Test pressure, bar: 25...27

Prestroke mm

: 2.00...2.10

: (1.95...2.15)

Rack travel in mm : 9.00...12.00

K₀₆

Firing order : 1-5-3-6-2-4

Phasing

: 0-60-120-180-240-300

Tolerance + - °

: 0.50 (0.75)

Time to cyl. no. : 1

BEGINNING OF DELIVERY DIFFERENCE

betw. rack trav. m: 8.50...9.50

& maximum rack tra: 21.00 Difference ° CS : 2.50...3.50

BASIC SETTING

1st speed

rpm: 700

Rack travel in mm : 12.70...12.80

Del.quantity cm3/: 8.7...8.8

100 s: (8.5...9.0)

Spread

Spread

cm3 : 0.3

100 s: (0.6)

rpm : 300.02nd speed

Rack travel in mm: 6.4...6.6

Del.quantity cm3/: 0.7...1.1

100 s: (0.4...1.3)

cm3 : 0.3

100 s: (0.5)

GUIDE SLEEVE POSITION

Control-lever position

Degree: -3

rpm : 800

Speed Rack travel in mm : 0.30...0.70

Governor spring pre-tension

Click setting x : 5.75

FULL LOAD DELIV. AT FULL LOAD STOP

1st version

Speed

Spread

rpm : 700

Del.quantity

1000

: 87.5...88.5 : (85.5...90.5)

cm3

: 3.50

: (6.00) 1000

RATED SPEED

1st version

Control lever

position degrees: 104...112

Testina: 1st rack travel in: 11.70 Speed rpm : 895...900 2nd rack travel in: 4.00 Speed rpm : 933...948 4th rack travel in: 1090 rpm : 0.30...1.40 Speed LOW IDLE 1 Control lever position degrees: 73...81 Setting point w/out bumper spring rpm : 300 Speed Rack travel in mm: 6.5 rpm : 300 Speed Rack travel in mm : 6.40...6.60 Rack travel in mm : 2.00 rpm : 310...370 Speed SET IDLE AUXILIARY SPRING Rack travel in mm: 2.00 **BREAKAWAY** 1st version 1mm rack travel less than full load rack tr: 11.70 rpm : 895...900 Speed

STARTING FUEL DELIVERY

rpm : 100 Speed Rack travel in mm: 19.50...21.00

LOW IDLE

Speed rpm : 300
Rack travel in mm : 6.40...6.60
Del.quantity cm3/: 7.0...11.0
1000 s: (4.5...13.5)
Spread cm3 : 3.50
1000 s: (5.50)

Remarks:

APPLICATION

Generator

Note remarks

Test sheet : DEE 7,7 d 7 : 21.08.91 Edition : 18.6.91 Replaces : ISO-4113 Test oil

Combination no. : 0 400 876 391

Injection pump

Pump designation : PES6A100D410RS2762-1

: 0 410 806 008 EP type number

Governor

: RSV425...1100A2C2225 Governor design.

: 0 420 232 566 Governer no.

Customer-spec. information : JOHN DEERE Customer

: 6076ARW-09 Engine

: 145.0 1st version kW Rated speed : 2200

TEST BENCH REQUIREMENTS

Test oil

inlet temp. °C : 38...42

Overflow valve

: 1 457 413 010

Inlet press., bar: 1.50

Test nozzle holder

: 1 688 901 101 assembly

Openina

: 207...210 pressure, bar

Orifice plate

diameter mm : 0,6

: 1 680 750 008 Test Lines

Outside diameter

x Wall thickness

x Length mm : 6.00x2.00x600

(A) Injection pump setting values Insp. values in parentheses Set equal delivery quant.

per values

BEGINNING OF DELIVERY

Test pressure, bar: 27...29

Firing order

Prestroke mm

: 2.95...3.05 : (2.90...3.10)

Rack travel in mm : 10.50

: 1-5-3-6-2-4

: 0-60-120-180-240-300 Phasing

Tolerance + - * : 0.50 (0.75)

Time to cyl. no. : 1

BASIC SETTING

1st speed rom: 1100

Rack travel in mm : 11.80...11.90

Del.quantity cm3/: 11.4...11.6

100 s: (11.2...11.8)

Spread cm3 : 0.4

100 s: (0.6)

rpm : 425.0 2nd speed

Rack travel in mm : 5.7...5.9 Del.quantity cm3/ : 2.6...3.0 100 s: (2.4...3.2)

cm3 : 0.6

Spread 100 s: (0.8)

GUIDE SLEEVE POSITION

Control-lever position Degree: -3

Speed rpm: 800 Rack travel in mm: 0.30...0.70

Governor spring pre-tension

Click setting x : 3.00

FULL LOAD DELIV. AT FULL LOAD STOP

1st version

Speed rpm : 1100

Aneroid pressure h: 900

Del.quantity : 114.0...118.0)

: 4.00 cm3 Spread

1000 : (6.50)

RATED SPEED

1st version

Control lever

position degrees: 37...45

Testina:

1st rack travel in: 10.80

rpm : 1140...1150 Speed

2nd rack travel in: 4.00

Speed rpm : 1205...1215

4th rack travel in: 1300

Speed rpm : 0.30...1.40

LOW IDLE 1

Control lever

position degrees: 13...21 Setting point w/out bumper spring

Speed rpm : 425 Rack travel in mm : 5.3

Testing:

Speed rpm : 100

Minimum rack trave: 19.00

Speed rpm : 425 Rack travel in mm : 5.70...5.90

TORQUE CONTROL

Torque control curve - 1st version
1st speed rpm : 1100
Rack travel in m: 11.80...11.90
2nd speed rpm : 650
Rack travel in m: 13.70...13.90

Aneroid/Altitude

Compensator Test

1st version

Setting

Speed rpm : 500 Pressure hPa : 900

Rack travel mm : 13.70...13.90

Measurement

 $1/\min : 500$ Speed

1st pressure hPa : -

Rack travel in m: 11.70...11.90

2nd pressure hPa : 535

Rack travel in m: 12.30...12.40

3rd pressure hPa : 720

Rack travel in m: 13.30...13.70

FUEL DELIVERY CHARACTERISTICS

1st version

Aneroid pressure h: 900

Speed rpm : 650 Del.quantity cm3/ : 147.5...150.5 1000 s: (145.0...153.0)

Aneroid pressure h: -

rpm : 500 Speed

Del.quantity cm3/: 129.0...133.0 1000 s: (126.0...136.0)

BREAKAWAY

1st version

1mm rack travel less than

full load rack tr: 10.80

Speed rpm : 1140...1150

STARTING FUEL DELIVERY

Speed rpm : 100

Del.quantity cm3/: 100.0...120.0 1000 s: (95.0...125.0)

LOW IDLE

Speed rpm : 425
Rack travel in mm : 5.70...5.90
Del.quantity cm3/ : 26.0...30.0
1000 s: (24.0...32.0)

cm3 : 6.00 Spread

1000 s: (8.00)

Remarks:

: JOHN DEERE # RE47502

Start-of-delivery mark = 13,5° after

start of delivery cyl. 1.

Adjustment without torque-control spring retainer with 0,5 mm less

control-rod travel. Increase in full-load delivery with torque-control

spring retainer.

Starting/full-load transition speed from holding magnet = 450 1/min.

APPLICATION

Tractor (tractor engines)

Note remarks

Test sheet : SAC 21,0 a Edition : 21.08.91

Replaces

: ISO-4113 Test oil

: 0 401 830 716 Combination no.

Injection pump

Pump designation: PE12P100A520/6RS3287

: 0 411 800 704 EP type number

Governor

: RQV375...1000PA639-2 Governor design.

: 0 421 813 514 Governer no.

Customer-spec. information Customer : SACM

: UD 18-V 12 R 1 Enaine

: 220.0 1st version kW : 2000 Rated speed

TEST BENCH REQUIREMENTS

Test oil

inlet temp. °C : 38...42

Overflow valve

: 1 417 413 025

Inlet press., bar: 1.50

Test nozzle holder

: 0 681 343 009 assembly

Openina .

: 172...175 pressure, bar

Test Lines : 1 680 750 015

Outside diameter x Wall thickness

: 6.00x1.50x600 x Length mm

(A) Injection pump setting values Insp. values in parentheses Set equal delivery quant.

per values

BEGINNING OF DELIVERY

Test pressure, bar: 25...27

Prestroke mm : 2.80...2.90 : (2.75...2.95)

Rack travel in mm: 15.00...18.00

: 1- 8- 5- 10- 3- 7-6- 11- 2- 9- 4- 12 Firing order

Phasing : 0-15-60-75-120-135-

180-195-240-255-300-

315

Tolerance + - ° : 0.50 (0.75)

BASIC SETTING

rpm: 1000 1st speed

Rack travel in mm : 10.20...10.30

Del.quantity cm3/: 9.4...9.6

100 s: (9.2...9.8)

cm3 : 0.3Spread

100 s: (0.6)

rpm : 375.02nd speed Rack travel in mm: 5.7...6.1

Del.quantity cm3/: 1.2...1.6 100 s: (0.9...1.8)

Spread cm3 : 0.3100 s: (0.5)

(B) Setting of injection pump

with governor

GUIDE SLEEVE TRAVEL

rpm : 1045 1st speed : 8.30...8.50 travel mm

rpm : 250 2nd speed : 0.70...1.30

travel mm : 375 3rd speed rpm

: 3.00...3.40 travel mm

4th speed : 650 rpm

: 5.00...5.40 travel mm

rpm : 1350 5th speed

: 11.00...12.00 travel mm

GUIDE SLEEVE POSITION Control-lever position

Degree: -1 rpm : 1160

Rack travel in mm : 8.90...11.50

FULL LOAD DELIV. AT FULL LOAD STOP

1st version

rpm : 1000 Speed

: 94.0...96.0 Del.quantity 1000 : (92.0...98.0)

: 3.50 Spread cm3

1000 : (6.00)

RATED SPEED

1st version Control lever

position degrees: 116...124

Testina:

1st rack travel in: 9.20 Speed rpm : 1040...1050 2nd rack travel in: 4.00

Speed rpm : 1105...1135 4th rack travel in: 1250

rpm : 0.00...1.00 Speed

LOW IDLE 1

Control lever

position degrees: 79...87

Testing:

rpm : 100 Speed Minimum rack trave: 7.40

Speed rpm : 375 Rack travel in mm : 5.80...6.00

CONSTANT REGULATION

rpm : 300...420 Speed

START CUT-OUT

1/min: 320 (340) Speed

BREAKAWAY

1st version

1mm rack travel less than

full load rack tr: 9.20

rpm : 1040...1050 Speed

STARTING FUEL DELIVERY

rpm : 100

Del.quantity cm3/: 220.0...240.0 1000 s: (216.0...244.0)

LOW IDLE

Speed rpm : 375
Rack travel in mm : 5.70...6.10
Del.quantity cm3/ : 12.0...16.0
1000 s: (9.5...18.5)
Spread cm3 : 3.50

1000 s: (5.50)

Remarks:

APPLICATION

Rail tractor

Note remarks

: MB 9,6 a 1 Test sheet : 21.08.91 Edition

: 7.4.89 Replaces : ISO-4113 Test oil

Combination no. : 0 401 846 261

Injection pump

Pump designation : PE6P100A320LS805 EP type number : 0 411 806 148

Governor

Governor design. : RQ300/1250PA187R

: 0 421 801 034 Governer no.

Customer-spec. information

Customer : DAIMLER-BENZ

Engine : 0M401

TEST BENCH REQUIREMENTS

Test oil

inlet temp. °C : 38...42

Overflow valve

: 1 417 413 025

Inlet press., bar: 1.50

Overflow

quantity min. 1/h: 100...120

Test nozzle holder

: 0 681 343 009 assembly

Opening

pressure, bar : 172...175

Test lines : 1 680 750 015

Outside diameter

x Wall thickness

: 6.00x1.50x600 x Length mm

(A) Injection pump setting values Insp. values in parentheses

Set equal delivery quant. per values

BEGINNING OF DELIVERY

Test pressure, bar: 25...27

Prestroke mm : 3.40...3.50 : (3.35...3,55)

Rack travel in mm : 9.00...12.00

K12

: 6-3-5-2-4-1 Firing order

: 0-45-120-165-240-285 Phasing

Tolerance + - ° : 0.50 (0.75)

Time to cyl. no. : 6

BASIC SETTING

rpm: 1250 1st speed

Rack travel in mm : 11.10...11.20

Del.quantity cm3/: 10.7...10.9

100 s: (10.5...11.1)

cm3 : 0.3Spread

100 s: (0.6)

rpm : 300.02nd speed Rack travel in mm: 7.9...8.1

Del.quantity cm3/: 1.8...2.4 100 s: (1.5...2.6)

cm3 : 0.3Spread

100 s: (0.5)

GUIDE SLEEVE POSITION

Control-lever position Degree: -1

rpm : 650

Rack travel in mm : 13.80...14.60

FULL LOAD DELIV. AT FULL LOAD STOP

1st version

rpm : 1250 Speed

107.0...109.0 1000 : (105.0...111.0) cm3 : 3.00 1000 : (6.00) Del.quantity

RATED SPEED

Spread

1st version

Setting point: Speed

rpm : 650 Rack travel in mm: 14.2

Testing:

1st rack travel in: 10.10

rpm : 1290...1300 Speed

2nd rack travel in: 4.00

Speed rpm : 1345...1375 4th rack travel in: 1450

rpm : 0.90...1.50Speed LOW IDLE 1 Setting point w/out bumper spring Speed rpm : 300 Rack travel in mm : 8.0 Testing: rpm : 100 Speed Minimum rack trave: 9.50 Speed rpm : 300
Rack travel in mm : 7.90...8.10
Rack travel in mm : 2.00 Speed : 420...450 rpm TORQUE CONTROL Dimension a mm Torque control curve - 1st version 1st speed rpm : 1250 Rack travel in m: 11.10...11.20 2nd speed rpm : 600 Rack travel in m: 11.10...11.30 FUEL DELIVERY CHARACTERISTICS 1st version Speed rpm : 600 Del.quantity cm3/ : 85.0...90.0 1000 s: (83.0...92.0) cm3 : 4.00 Spread 1000 s: (7.00) **BREAKAWAY** 1st version 1mm rack travel less than full load rack tr: 10.10 rpm : 1290...1300 Speed STARTING FUEL DELIVERY rpm : 100 Speed Del.quantity cm3/: 110.0...130.0 1000 s: (106.0...134.0) HIGH IDLE 1st version Rack travel in mm : 3.90...4.10

cm3 : 4.00

1000 s: (6.00)

Spread

Remarks:

Note remarks

Test sheet : DAF 11,7 h
Edition : 21.08.91
Replaces : 18.2.91
Test oil : ISO-4113

Combination no. : 0 401 846 916

Injection pump

Pump designation : PE6P12OA32ORS3248 EP type number : 0 411 826 792

Governor

Governor design. : RQ250/1000PA832-3

Governer no. : 0 421 801 506

Customer—spec. information Customer : DAF

Engine : WS 242

1st version kW : 242.0 Rated speed : 2000

TEST BENCH REQUIREMENTS

Test oil

inlet temp. °C : 38...42

Overflow valve

: 1 417 413 025

Inlet press., bar: 1.50

Test nozzle holder

assembly : 1 688 901 019

Openina

pressure, bar : 207...210

Orifice plate

diameter mm : 0,8

Test lines : 1 680 750 075

Outside diameter x Wall thickness

x Length mm : 8.00x2.50x1000

(A) Injection pump setting values Insp. values in parentheses Set equal delivery quant. per values

BEGINNING OF DELIVERY
Test pressure, bar: 25...27

Prestroke mm : 4.20...4.30 : (4.15...4.35)

Rack travel in mm : 9.00...12.00

Firing order : 1-5-3-6-2-4

Phasing : 0-60-120-180-240-300

Tolerance $+ - \circ : 0.50 (0.75)$

BASIC SETTING

1st speed rpm: 850

Rack travel in mm : 12.50...12.60

Del.quantity cm3/: 20.9...21.1

100 s: (20.6...21.4)

Spread cm3 : 0.5

100 s: (0.9)

2nd speed rpm : 250.0 Rack travel in mm : 6.5...6.7 Del.quantity cm3/: 1.4...2.0

100 s: (1.1...2.3)

Spread cm3 : 0.8 100 s: (1.2)

GUIDE SLEEVE POSITION Control-lever position

Degree: -1

Speed rpm: 550

Rack travel in mm : 15.20...16.40

FULL LOAD DELIV. AT FULL LOAD STOP

1st version

Speed rpm: 850

Aneroid pressure h: 1000

Del.quantity : 209.0...211.0 1000 : (206.0...214.0)

Spread cm3 : 5.00

1000 : (9.00)

RATED SALTD

1st version

Setting point:

Speed rpm : 550 Rack travel in mm : 15.8

Testina:

1st rack travel in: 11.50

Speed rpm : 1035...1050

2nd rack travel in: 4.00

rpm : 1125...1155 Speed 4th rack travel in: 1250

rpm : 0.00...1.40Speed

LOW IDLE 1

Setting point w/out bumper spring

rpm : 250 Speed Rack travel in mm: 6.0

Testina:

Speed rpm : 100 Minimum rack trave: 7.50

Speed rpm: 250
Rack travel in mm: 5.90...6.10
Rack travel in mm: 2.00
Speed rpm: 335...375

TORQUE CONTROL

Dimension a mm

Torque control curve - 1st version

1st speed rpm : 850

Rack travel in m: 13.50...13.60

2nd speed rpm : 1000

Rack travel in m: 13.40...13.60

Aneroid/Altitude Compensator Test

1st version

Setting

rpm : 600 hPa : 1000 Speed rpm Pressure

Rack travel mm : 12.50...12.60

Measurement

1/min: 600 Speed

1st pressure hPa : -

Rack travel in m: 11.00...11.20

2nd pressure hPa : 340

Rack travel in m: 12.10...12.20

3rd pressure hPa : 250

Rack travel in m: 11.40...11.60

FUEL DELIVERY CHARACTERISTICS

1st version

Aneroid pressure h: -

Speed rpm : 600 Del.quantity cm3/ : 164.0...166.0

1000 s: (161.0...169.0)

BREAKAWAY

1st version 1mm rack travel less than full load rack tr: 11.50

rpm : 1035...1050 Speed

LOW IDLE

: 250 Speed rpm

Rack travel in mm : 5.90...6.10

Remarks:

Note remarks

: VOL 5,9 b Test sheet : 23.08.91 Edition

Replaces

Test oil : ISO-4113

: 0 401 846 937 Combination no.

Injection pump

Pump designation : PE6P110A320RS3266 EP type number : 0 411 816 777

Governor

Governor design. : RQV300...1300PA996K

: 0 421 815 277 Governer no.

Customer—spec, information

: VOLVO-TRUCK Customer

: TD63ES Engine

1st version kW : 155.0 Rated speed : 2600

TEST BENCH REQUIREMENTS

Test oil

inlet temp. °C : 38...42

Overflow valve

: 1 457 413 010

Inlet press., bar: 1.50

Test nozzle holder

: 1 688 901 101 assembly

Opening |

pressure, bar : 207...210

Orifice plate

diameter mm : 0,6

Test lines : 1 680 750 008

Outside diameter x Wall thickness

: 6.00X2.00X600 x Length mm

(A) Injection pump setting values Insp. values in parentheses Set equal delivery quant.

per values

BEGINNING OF DELIVERY

Test pressure, bar: 25...27

: 2.40...2.50 Prestroke mm (2.30...2.50)

Rack travel in mm : 9.00...12.00

: 1-5-3-6-2-4 Firing order

Phasing : 0-60-120-180-240-300

Tolerance + - ° : 0.30 (0.75)

Time to cyl. no.

BASIC SETTING

1st speed rpm : 780

Rack travel in mm : 11.50...11.60

Del.quantity cm3/: 13.1...13.3

100 s: (12.9...13.5)

Spread cm3 : 0.5

100 s: (0.9)

2nd speed rpm : 330.0 Rack travel in mm : 5.4...5.6 Del.quantity cm3/ : 1.7...2.1 100 s: (1.4...2.4)

Spread cm3 : 0.7100 s: (1.1)

(B) Setting of injection pump with governor

GUIDE SLEEVE TRAVEL

1st speed rpm : 330

1.20...1.60 travel mm

500 2nd speed rpm

travel mm 2.90...3.50 : 900

3rd speed man 4.70...5.30 travel mm

: 1370 4th speed rpm

: 9.80...10.00 travel mm

: 1450 5th speed rpm

: 11.00...11.40 travel mm

GUIDE SLEEVE POSITION Control-lever position

Degree: -1

rpm : 1470 Speed

Rack travel in mm : 6.00...12.00

FULL LOAD DELIV. AT FULL LOAD STOP

1st version

Speed rpm : 780 Aneroid pressure h: 1000

Del.quantity : 131.0...133.0

1000 : (129.0...135.0)

: 5.00 Spread cm3 1000 : (9.00)

RATED SPEED

1st version

Control Lever

position degrees: 123...131

Testina:

1st rack travel in: 11.10

rpm : 1360...1370 Speed

2nd rack travel in: 4.00

rpm : 1430...1460 Speed

4th rack travel in: 1520

rpm : 0.00...1.00 Speed

LOW IDLE 1 Control Lever

position degrees: 78...86

Testing:

Speed : 100 rpm Minimum rack trave: 7.00 : 330 Speed rpm

Rack travel in mm : 5.40...5.60

CONSTANT REGULATION

rpm : 330...600 Speed

TORQUE CONTROL

Dimension a mm

Torque control curve - 1st version

1st speed rpm : 1300

Rack travel in m: 12.10...12.20

rpm : 780 2nd speed

Rack travel in m: 11.50...11.60

Aneroid/Altitude Compensator Test

1st version Setting

pm : 1300 hPa : 1000 Speed rpm

Pressure : 12.10...12.20 Rack travel mm

Measurement

Speed $1/\min: 1300$

1st pressure hPa : -

Rack travel in m: 8.50...8.70

2nd pressure hPa : 110

Rack travel in m: 8.70...8.80

3rd pressure hPa : 650

Rack travel in m: 11.00...11.20

FUEL DELIVERY CHARACTERISTICS

1st version

Aneroid pressure h: 1000 : 1300 Speed rpm

Del.quantity cm3/: 129.0...133.0 1000 s: (126.0...136.0)

cm3 : 8.00 Spread

1000 s: (12.0)

Aneroid pressure h: rpm : 780 Speed

Del.quantity cm3/: 73.0...75.0

1000 s: (70.0...78.0)

BREAKAWAY

1st version

1mm rack travel less than

full load rack tr: 11.10

rpm : 1360...1370 Speed

STARTING FUEL DELIVERY

rpm : 100 Speed

Del.guantity cm3/: 100.0...130.0

1000 s: (96.0...134.0)

Rack travel in mm : 10.40...10.90

Remarks:

Delivery-valve spring pre-tension = 2.40...2.60 mm.

:

Permissible alteration from 2.20...2.90

Start-of-delivery setting with ROBO

diaphragm.

Note remarks

: VOL 5,9 b 1 Test sheet Edition : 23.08.91

Replaces

Test oil : ISO-4113

: 0 401 846 938 Combination no.

Injection pump

Pump designation : PE6P110A320RS3266 : 0 412 816 777

EP type number Governor

: RQV300...1300PA996-1 Governor design.

: 0 421 815 278 Governer no.

Customer-spec. information

: VOLVO-TRUCK Customer

Engine : TD63E

1st version kW : 133.0 Rated speed : 2600

TEST BENCH REQUIREMENTS

Test oil

inlet temp. °C : 38...42

Overflow valve

: 1 457 413 010

Inlet press., bar: 1.50

Test nozzle holder

: 1 688 901 101 assembly

Opening.

: 207...210 pressure, bar

Orifice plate

diameter mm : 0,6

Test lines : 1 680 750 008

Outside diameter

x Wall thickness

x Length mm : 6.00x2.00x600

(A) Injection pump setting values Insp. values in parentheses Set equal delivery quant.

per values

BEGINNING OF DELIVERY

Test pressure, bar: 25...27

Prestroke mm

: 2.40...2.50

: (2.30...2.50) Rack travel in mm : 9.00...12.00 Firing order

: 1-5-3-6-2-4

Phasing

: 0-60-120-180-240-300

Tolerance + - °

: 0.30 (0.75)

Time to cyl. no.

BASIC SETTING

1st speed rpm: 780

Rack travel in mm : 10.20...10.30

Del.quantity cm3/: 9.7...9.9

100 s: (9.5...10.1)

cm3 : 0.5Spread

100 s: (0.9)

rpm : 330.02nd speed Rack travel in mm : 5.4...5.6

Del.quantity cm3/: 1.7...2.1 100 s: (1.4...2.4)

cm3 : 0.7Spread

100 s: (1.1)

(B) Setting of injection pump with governor

GUIDE SLEEVE TRAVEL

1st speed : 330 rpm

: 1.20...1.60 travel mm

: 500 2nd speed rpm

2.90...3.50 travel mm

900 3rd speed rom

4.70...5.30 travel mm

1370 4th speed man

travel mm : 9.80...10.00

: 1450 5th speed rpm

travel mm : 11.00...11.40

GUIDE SLEEVE POSITION Control-Lever position

Degree: -1 rpm : 1470

Rack travel in mm : 6.00...12.00

FULL LOAD DELIV. AT FULL LOAD STOP

1st version

Speed rpm : 780

3rd pressure hPa : 540 Rack travel in m: 10.70...10.90 Aneroid pressure h: 1000 : 97.0...99.0 Del.quantity 1000 : (95.0...101.0) : 5.00 FUEL DELIVERY CHARACTERISTICS cm3 Spread 1000 : (9.00) 1st version RATED SPEED Aneroid pressure h: 1000 rpm : 1050 1st version Speed Control lever Del.quantity cm3/: 110.0...114.0 1000 s: (107.0...117.0) position degrees: 123...131 cm3 : 8.00 Spread 1000 s: (12.0) Testing: Aneroid pressure h: 1000 1st rack travel in: 10.30 rpm : 1360...1370 Speed man : 1300 Speed 2nd rack travel in: 4.00 Del.quantity cm3/: 118.0...124.0 1000 s: (115.0...127.0) Speed rpm : 1420...1450 4th rack travel in: 1520 Aneroid pressure h: -: 780 Speed nom : 0.00...1.00 Speed rpm Del.quantity cm3/: 73.0...75.0 1000 s: (70.0...78.0) LOW IDLE 1 Control lever position degrees: 78...86 **BREAKAWAY** Testing: Speed rom : 100 1st version Minimum rack trave: 7.00 1mm rack travel less than Speed rpm : 330 Rack travel in mm : 5.40...5.60 full load rack tr: 10.30 Speed rpm : 1360...1370 Speed CONSTANT REGULATION rpm : 330...600 STARTING FUEL DELIVERY Speed TORQUE CONTROL Dimension a mm :? Torque control curve - 1st version 1st speed rpm : 780 Rack travel in m: 10.20...10.30 2nd speed rpm : 1050 Rack travel in m: 10.80...10.90 LOW IDLE rpm : 1300 3rd speed Speed rpm: 330
Rack travel in mm: 5.40...5.60
Del.quantity cm3/: 17.0...21.0 Rack travel in m: 11.30...11.50 Aneroid/Altitude 1000 s: (14.0...24.0) Compensator Test cm3 : 7.00Spread 1000 s: (11.00) 1st version Setting Remarks: : 1300 Speed rpm hPa : 1000 Pressure : 11.30...11.50 Delivery-valve spring pre-tension = Rack travel mm 2.40...2.60 mm. Permissible alteration from 2.20...2.90 Measurement $1/\min : 1300$ Speed Start-of-delivery setting with ROBO 1st pressure hPa : -Rack travel in m: 8.50...8.70 2nd pressure hPa : 110 Rack travel in m: 8.70...8.80 diaphragm.

Note remarks

: PEN 12,2 a3 Test sheet : 23.08.91 Edition

Replaces

Test oil : ISO-4113

: 0 401 846 948 Combination no.

Injection pump

Pump designation : PE6P120A320RS3206-1

EP type number : 0 411 826 775

Governor

Governor design. : RQ750PA783-2 : 0 421 801 600 Governer no.

Customer-spec. information : PENTA Customer

: TWD 121 OG Engine

TEST BENCH REQUIREMENTS

Test oil

inlet temp. °C : 38...42

Overflow valve

: 1 417 413 025

Inlet press., bar: 1.50

Test nozzle holder

: 1 688 901 019 assembly

Opening .

: 207...210 pressure, bar

Orifice plate

diameter mm : 0,8

Test lines : 1 680 750 067

Outside diameter x Wall thickness

x Length mm : 6.00x1.50x1000

(A) Injection pump setting values Insp. values in parentheses Set equal delivery quant.

per values

BEGINNING OF DELIVERY

Test pressure, bar: 25...27

: 3.50...3.60 Prestroke mm

: (3.45...3.65)

Rack travel in nm : 9.00...12.00

: 1-5-3-6-2-4 Firing order

: 0-60-120-180-240-300 Phasing

: 0.50 (0.75) Tolerance + - °

Time to cyl. no. : 1

BASIC SETTING

rpm: 700 1st speed

Rack travel in mm : 11.60...11.70

Del.quantity cm3/: 26.6...26.8

100 s: (26.3...27.1)

cm3 : 0.5Spread

100 s: (0.9)

rpm : 300.02nd speed Rack travel in mm : 4.8...5.2

Del.quantity cm3/: 1.7...2.3

100 s: (1.4...2.6) cm3 : 0.4Spread

100 s: (0.7)

FULL LOAD DELIV. AT FULL LOAD STOP

1st version

rpm : 700 Speed

: 266.0...268.0 Del.quantity 1000 : (263.0...271.0) cm3 : 5.00 1000 : (9.00)

Spread

RATED SPEED

1st version

Control lever

position degrees: 84...92

Testing:

1st rack travel in: 10.60

Speed rpm : 748...753 2nd rack travel in: 4.00

Speed rpm : 773...786 4th rack travel in: 850

: 0.00...1.00 Speed rpm

BREAKAWAY

1st version

1mm rack travel less than

full load rack tr: 10.60 Speed rpm : 748...753

Remarks:

APPLICATION

Generator set

Note remarks

Test sheet : SCA 11.0 y5 Edition : 23.08.91

Replaces

Test oil : ISO-4113

Combination no. : 9 401 846 957

Injection pump

Pump designation : PE6P110A720RS3115 EP type number : 0 411 816 735

Governor

Governor design. : RQV250...1100PA468-1

Governer no. : 0 421 813 956

Customer—spec. information Customer : SCANIA

Engine : DN11 08

TEST BENCH REQUIREMENTS

Test oil

inlet temp. °C : 38...42

Overflow valve

: 1 417 413 025

Inlet press., bar: 1.50

Test nozzle holder

assembly : 0 681 343 009

Opening

pressure, bar : 172...175

Test lines : 1 680 750 015

Outside diameter

x Wall thickness

x Length mm : 6.00x1.50x600

(A) Injection pump setting values Insp. values in parentheses

Set equal delivery quant. per values

BEGINNING OF DELIVERY

Test pressure, bar: 25...27

Prestroke mm : 3.30...3.40

: (3.25...3.45)

Rack travel in mm : 9.00...12.00

Firing order : 1-5-3-6-2-4

Phasing : 0-60-120-180-240-300

Tolerance $+ - \circ : 0.50 (0.75)$

Time to cyl. no. : 1

BASIC SETTING

1st speed rpm: 700

Rack travel in mm : 11.70...11.80

Del.quantity cm3/ : 11.2...11.4

100 s: (11.0...11.6)

Spread cm3 : 0.5

100 s: (0.7)

2nd speed rpm : 250.0

Rack travel in mm : 4.5...4.8

Del.quantity cm3/: 1.2...1.6

100 s: (-)

Spread cm3 : 0.2 100 s: (0.4)

(B) Setting of injection pump with governor

GUIDE SLEEVE TRAVEL

1st speed rpm : 250

travel mm : 1.20...1.60

2nd speed rpm: 350

travel mm : 2.40...3.00

3rd speed rpm : 650

travel mm : 4.60...5.20

4th speed rpm: 1145

travel mm : 8.60...8.80

5th speed rpm : 1255

travel mm : 9.70...10.10

GUIDE SLEEVE POSITION Control-lever position

Degree: -1

Speed rpm: 1125

Rack travel in mm : 15.20...17.80

FULL LOAD DELIV. AT FULL LOAD STOP

1st version

Speed rpm: 700

Del.quantity : 112.0...114.0

1000 : (110.0...116.0)

Spread cm3 : 5.00

1000 : (7.00)

RATED SPEED

1st version Control lever position degrees: 113...121 Testina: 1st rack travel in: 10.70 Speed rpm : 1140...1150 2nd rack travel in: 4.00 rpm : 1240...1270 Speed 4th rack travel in: 1400 non : 0.00...1.00 Speed LOW IDLE 1 Control Lever position degrees: 62...70 Testing: rpm : 100 Speed Minimum rack trave: 6.10
Speed rpm: 250
Rack travel in mm: 4.50...4.70
Rack travel in mm: 2.00
Speed rpm: 360...420 FUEL DELIVERY CHARACTERISTICS 1st version rpm : 1000 Speed Del.quantity cm3/: 113.5...118.5 1000 s: (111.0...121.0) **BREAKAWAY** 1st version 1mm rack travel less than full load rack tr: 10.70 rpm : 1140...1150 Speed STARTING FUEL DELIVERY rpm : 100 Speed Del.quantity cm3/: 240.0...290.0 1000 s: (-) Rack travel in mm : 20.00...21.00 LOW IDLE : 250 Speed rpm Rack travel in mm : 4.50...4.70 Remarks: Delivery-valve spring pre-tension

Permissible alteration of 3.0...3.5 mm

Start-of-delivery setting with ROBO diaphragm.

APPLICATION

Omnibus

K23

3.2...3.4 mm.

Note remarks

Test sheet : LIE 12,0 a : 21.08.91 Edition : 16.2.90 Replaces Test oil : ISO-4113

Combination no. : 0 401 876 770

Injection pump

Pump designation : PE6P110A320LS3852 : 0 411 816 768 EP type number

Governor

Governor design. : RSV400...900P1A544

: 0 421 833 326 Governer no.

Customer-spec. information Customer : LIEBHERR

: D 9306 T Engine

: 172.0 1st version kW : 1800 Rated speed

TEST BENCH REQUIREMENTS

Test oil

inlet temp. °C : 38...42

Overflow valve

: 1 417 413 025

Inlet press., bar: 1.50

Test nozzle holder

: 0 681 343 009 assembly

Opening

: 172...175 pressure, bar

Test lines : 1 680 750 015

Outside diameter

x Wall thickness

: 6.00X1.50X600 x Length mm

(A) Injection pump setting values Insp. values in parentheses Set equal delivery quant.

per values

BEGINNING OF DELIVERY Test pressure, bar: 25...27

Prestroke mm : 3.80...3.90 : (3.75...3.95) Rack travel in mm : 9.00...12.00

Firing order : 1-6-3-5-2-4

Phasing : 0-75-120-195-240-315

: 0.50 (0.75) Tolerance + - °

Time to cyl. no. : 1

BASIC SETTING

rpm: 890 1st speed

Rack travel in mm : 11.70...11.80

Del.quantity cm3/: 13.8...14.1

100 s: (13.5...14.3)

cm3 : 0.4Spread

100 s: (0.7)

2nd speed rpm : 400.0 Rack travel in mm : 5.8...6.0 Del.quantity cm3/ : 1.3...1.8 100 s: (1.0...2.0)

cm3 : 0.4 Spread 100 s: (0.7)

GUIDE SLEEVE POSITION

Control-lever position Degree: -3

rpm : 800 Speed Rack travel in mm : 0.30...0.70

Governor spring pre-tension Click setting x : 2.50

FULL LOAD DELIV. AT FULL LOAD STOP

1st version

Speed rpm : 890

: 138.0...141.0 Del.quantity 1000 : (135.5...143.5)

Spread : 4.00 cm3

: (7.50) 1000

RATED SPEED

1st version Control lever

position degrees: 88...96

Testing:

1st rack travel in: 10.70 Speed rpm : 930...940 2nd rack travel in: 4.00 : 945...975 Speed תמח

3rd rack travel in: 4.00 rpm : 950...980 Speed 4th rack travel in: 1120 rpm : 0.30...1.40 Speed LOW IDLE 1 Control Lever position degrees: 66...74 Setting point w/out bumper spring Speed rpm : 400 Rack travel in mm : 5.4 Speed rpm : 400
Rack travel in mm : 5.80...6.00
Rack travel in mm : 2.00 rpm : 450...510 Speed TORQUE CONTROL Torque control curve - 1st version rpm : 890 1st speed Rack travel in m: 11.70...11.80 2nd speed rpm : 500 Rack travel in m: 11.70...11.90 3rd speed rpm : 420 Rack travel in m: 12.90...13.50 FUEL DELIVERY CHARACTERISTICS 1st version Speed rpm : 500 Del.quantity cm3/: 140.0...144.0 1000 s: (137.0...147.0) **BREAKAWAY** 1st version 1mm rack travel less than full load rack tr: 10.70 rpm : 930...940 Speed INTERMEDIATE RATED SPEED Rack travel in mm: 4.00 STARTING FUEL DELIVERY rpm : 100 Speed Del.quantity cm3/: 150.0...170.0 1000 s: (146.0...174.0) LOW IDLE rpm : 400 Speed Rack travel in mm : 5.80...6.00 Del.quantity cm3/: 13.0...18.0 1000 s: (10.5...20.5)

cm3 : 4.50 1000 s: (7.50) Remarks:

K25

Spread

Note remarks

Test sheet : LIE 12,0 a1 : 21.08.91 Edition

Replaces

: ISO-4113 Test oil

Combination no. : 0 401 876 770A

Injection pump

Pump designation : PE6P110A320LS3852 : 0 411 816 768 EP type number

Governor

Governor design. : RSV400...900P1A544

: 0 421 833 326 Governer no.

Customer-spec. information : LIEBHERR Customer

: D 9306 TB Engine

: 132.0 1st version kW : 1800 Rated speed

TEST BENCH REQUIREMENTS

Test oil

inlet temp. °C : 38...42

Overflow valve

: 1 417 413 025

Inlet press., bar: 1.50

Test nozzle holder

: 0 681 343 009 assembly

Openina

pressure, bar : 172...175

: 1 680 750 015 Test lines

Outside diameter

x Wall thickness

: 6.00x1.50x600 x Length mm

(A) Injection pump setting values Insp. values in parentheses

Set equal delivery quant. per values

BEGINNING OF DELIVERY

Test pressure, bar: 25...27

: 3.80...3.90 Prestroke mm

: (3.75...3.95)

Rack travel in mm : 9.00...12.00

Firing order : 1-6-3-5-2-4

Phasing : 0-75-120-195-240-315

Tolerance + - ° : 0.50 (0.75)

Time to cyl. no. : 1

BASIC SETTING

1st speed rpm: 890

Rack travel in mm : 11.30...11.40

Del.guantity cm3/: 13.3...13.5

100 s: (13.0...13.7)

Spread cm3 : 0.4

100 s: (0.7)

rpm : 400.02nd speed Rack travel in mm : 5.8...6.0

Del.quantity cm3/: 1.3...1.8 100 s: (1.0...2.0)

cm3 : 0.4 Spread

100 s: (0.7)

GUIDE SLEEVE POSITION Control-lever position

Degree: -3

rpm : 800 Speed Rack travel in mm : 0.30...0.70

Governor spring pre-tension

Click setting x : 5.00

FULL LOAD DELIV. AT FULL LOAD STOP

1st version

rpm : 890 Speed

: 133.0...135.0 1000 : (130.5...137.5) Del.quantity

cm3 : 4.00 1000 : (7.50) Spread

RATED SPEED

1st version

Control lever

position degrees: 96...104

Testing:

1st rack travel in: 10.30

rpm : 930...940 Speed

2nd rack travel in: 6.40

rpm : 955...985 Speed

4th rack travel in: 1120 rpm : 0.30...1.40Speed LOW IDLE 1 Control lever position degrees: 66...74 Setting point w/out bumper spring : 400 COUR Speed Rack travel in mm: 5.4 Speed rpm : 400 Rack travel in mm : 5.80...6.00 Rack travel in mm : 2.00 rpm : 450...510 Speed TORQUE CONTROL Torque control curve - 1st version 1st speed rpm : 890 Rack travel in m: 11.30...11.40 rpm : 500 2nd speed Rack travel in m: 11.30...11.50 3rd speed rpm : 420 Rack travel in m: 12.50...13.10 FUEL DELIVERY CHARACTERISTICS 1st version : 500 Speed rpm Del.quantity cm3/: 132.0...136.0 1000 s: (129.0...139.0) **BREAKAWAY** 1st version 1mm rack travel less than full load rack tr: 10.30 rpm : 930...940 Speed STARTING FUEL DELIVERY Speed : 100 rpm Del.quantity cm3/: 150.0...170.0 1000 s: (146.0...174.0) LOW IDLE Speed rpm : 400
Rack travel in mm : 5.80...6.00
Del.quantity cm3/ : 13.0...18.0
1000 s: (10.5...20.5) cm3 : 4.50 1000 s: (7.50) Spread Remarks:

Note remarks

Test sheet : LIE 12,0 a2 Edition : 21.08.91

Replaces Test oil

: ISO-4113

Combination no. : 0 401 876 7700

Injection pump

Pump designation : PE6P110A320LS3852

EP type number : 0 411 816 768

Governor

Governor design. : RSV400...900P1A544

: 0 421 833 326 Governer no.

Customer-spec. information : LIEBHERR Customer

Engine : D 9306 TI

1st version kW : 220.0 : 1800 Rated speed

TEST BENCH REQUIREMENTS

Test oil

inlet temp. °C : 38...42

Overflow valve

: 1 417 413 025

Inlet press., bar: 1.50

Test nozzle holder

: 0 681 343 009 assembly

Opening

: 172...175 pressure, bar

Test lines : 1 680 750 015

Outside diameter x Wall thickness

: 6.00x1.50x600 x Length mm

(A) Injection pump setting values Insp. values in parentheses Set equal delivery quant.

per values

BEGINNING OF DELIVERY

Test pressure, bar: 25...27

: 3.80...3.90 Prestroke mm

: (3.75...3.95)

Rack travel in mm : 9.00...12.00

Phasing

Firing order

: 0-75-120-195-240-315

: 1-6-3-5-2-4

Tolerance + - °

: 0.50 (0.75)

Time to cyl. no. : 1

BASIC SETTING

1st speed rpm: 890

Rack travel in mm : 14.50...14.60

Del.quantity cm3/: 19.5...19.7

100 s: (19.2...19.9)

Spread cm3 : 0.4

100 s: (0.7)

rpm : 400.0 2nd speed Rack travel in mm : 5.8...6.0 Del.quantity cm3/: 1.3...1.8

100 s: (1.0...2.0)

cm3 : 0.4 100 s: (0.7) Spread

GUIDE SLEEVE POSITION Control-lever position

Degree: -3

Speed rpm: 800 Rack travel in mm: 0.30...0.70

Governor spring pre-tension Click setting x : 5.00

FULL LOAD DELIV. AT FULL LOAD STOP

1st version

rpm : 890 Speed

: 195.0...197.0 Del.quantity

1000 : (192.5...199.5)

: 4.00 Spread cm3

1000 : (7.50)

RATED SPEED

1st version

Control lever

position degrees: 98...106

Testing:

1st rack travel in: 13.50 Speed rpm : 930...940 2nd rack travel in: 6.40

rpm : 980...1010 Speed

4th rack travel in: 1120 rpm : 0.30...1.40 Speed LOW IDLE 1 Control Lever position degrees: 66...74 Setting point w/out bumper spring Speed rpm : 400 Rack travel in mm : 5.4 Speed rpm : 400
Rack travel in mm : 5.80...6.00
Rack travel in mm : 2.00 Speed rpm : 450...510 TORQUE CONTROL Torque control curve - 1st version 1st speed rpm : 890 Rack travel in m: 14.50...14.60 2nd speed rpm : 500 Rack travel in m: 14.50...14.70 3rd speed rpm : 420 Rack travel in m: 15.70...16.30 FUEL DELIVERY CHARACTERISTICS 1st version Speed rpm: 500 Del.quantity cm3/: 200.0...204.0 1000 s: (197.0...207.0) **BREAKAWAY** 1st version 1mm rack travel less than full load rack tr: 13.50 Speed rpm : 930...940 STARTING FUEL DELIVERY rpm : 100 Del.quantity cm3/: 150.0...170.0 1000 s: (146.0...174.0) LOW IDLE Speed rpm : 400
Rack travel in mm : 5.80...6.00
Del.quantity cm3/: 13.0...18.0
1000 s: (10.5...20.5) Spread cm3 : 4.50 1000 s: (7.50) Remarks:

L01

Note remarks

: DAF 8,3 s Test sheet : 27.05.91 Edition : 28.3.91 Replaces Test oil : ISO-4113

: 0 401 876 783 Combination no.

Injection pump

Pump designation : PE6P110A720RS3225 : D 411 816 763 EP type number

Governor

Governor design. : RSV250...750P7A507-2

: 0 421 833 353 Governer no.

Customer-spec. information : DAF Customer

: Hs AG Engine

TEST BENCH REQUIREMENTS

Test oil

inlet temp. °C : 38...42

Overflow valve

: 1 417 413 025

Inlet press., bar: 1.50

Test nozzle holder

: 0 681 343 009 assembly

Opening

: 172...175 pressure, bar

Test lines : 1 680 750 015

Outside diameter x Wall thickness

: 6.00X1.50X600 x Length mm

(A) Injection pump setting values Insp. values in parentheses Set equal delivery quant. per values ____

BEGINNING OF DELIVERY

Test pressure, bar: 25...27

Prestroke mm : 3.70...3.80

: (3.65...3.85)

Rack travel in mm : 9.00...12.00 : 1-5-3-6-2-4 Firing order

: 0-60-120-180-240-300 Phasing

Tolerance + - ° : 0.50 (0.75)

BASIC SETTING

rpm: 700 1st speed

Rack travel in mm : 12.90...13.00

Del.quantity cm3/: 12.4...12.6

100 s: (12.2...12.8)

cm3 : 0.4Spread

100 s: (0.7)

rpm : 325.02nd speed Rack travel in mm: 7.3...7.5 Del.quantity cm3/: 1.3...1.7

100 s: (1.0...1.9)

cm3 : 0.3Spread 100 s: (0.5)

GUIDE SLEEVE POSITION Control-lever position

Degree: -3

rpm : 800 Speed Rack travel in mm : 0.30...0.70

Governor spring pre-tension Click setting x : 4.00

FULL LOAD DELIV. AT FULL LOAD STOP

1st version

Speed rpm : 700

: 124.0...126.0 Del.quantity 1000 : (122.0...128.0)

: 4.00 cm3 Spread

1000 : (7.50)

RATED SPEED

1st version Control lever

position degrees: 90...98

Testina:

1st rack travel in: 11.90 Speed rpm : 750...755 2nd rack travel in: 4.00 rpm : 780...795 Speed

4th rack travel in: 950

rpm : 0.30...1.40 Speed

LOW IDLE 1 Control lever

position degrees: 68...76 Setting point w/out bumper spring

Speed rpm : 325 Rack travel in mm : 5.3

Speed rpm : 325
Rack travel in mm : 5.20...5.40
Rack travel in mm : 2.00
Speed rpm : 345...385

SET IDLE AUXILIARY SPRING Rack travel in mm : 2.00

BREAKAWAY

1st version 1mm rack travel less than

full load rack tr: 11.90 Speed rpm : 750...755 Speed

LOW IDLE

Speed rpm : 325 Rack travel in mm : 5.20...5.40

Remarks:

APPLICATION

Generator

Note remarks

Test sheet : DAF 8,3 s 1 Edition : 21.08.91

Replaces

Test oil : ISO-4113

: 0 401 876 783 Combination no.

Injection pump

Pump designation : PE6P110A720RS3225

: 0 411 816 763 EP type number

Governor

Governor design. : RSV325...750P7A507-4

: 0 421 833 362 Governer no.

Customer-spec. information : DAF Customer

: Hs AG Engine

TEST BENCH REQUIREMENTS

Test oil

inlet temp. °C : 38...42

Overflow valve

: 1 417 413 025

Inlet press., bar: 1.50

Test nozzle holder

: 0 681 343 009 assembly

Opening

: 172...175 pressure, bar

Test lines : 1 680 750 015

Outside diameter

x Wall thickness

: 6.00X1.50X600 x Length mm

(A) Injection pump setting values Insp. values in parentheses Set equal delivery quant.

per values

BEGINNING OF DELIVERY

Test pressure, bar: 25...27

: 3.70...3.80 Prestroke mm

: (3.65...3.85) Rack travel in mm : 9.00...12.00

: 1-5-3-6-Firing order

Phasing : 0-60-120-180-240-300

Tolerance + - ° : 0.50 (0.75)

BASIC SETTING

rpm: 700 1st speed

Rack travel in mm : 12.90...13.00

Del.quantity cm3/: 12.4...12.6

100 s: (12.2...12.8)

cm3 : 0.4Spread

100 s: (0.7)

2nd speed rpm : 325.0 Rack travel in mm : 7.3...7.5 Del.quantity cm3/ : 1.3...1.7

100 s: (1.0...1.9)

cm3 : 0.3 Spread

100 s: (0.5)

GUIDE SLEEVE POSITION Control-lever position

Degree: -3

rpm : 800 Speed Rack travel in mm : 0.30...0.70

Governor spring pre-tension

Click setting x : 4.00

FULL LOAD DELIV. AT FULL LOAD STOP

1st version

rpm : 700 Speed

: 124.0...126.0 Del.quantity 1000 : (122.0...128.0)

cm3 : 4.00 Spread

1000 : (7.50)

RATED SPEED

1st version

Control lever

position degrees: 90...98

Testing:

1st rack travel in: 11.90

Speed rpm : 750...755 2nd rack travel in: 4.00

Speed rpm : 780...795 4th rack travel in: 950

rpm : 0.30...1.40Speed

LOW IDLE 1

Control lever

position degrees: 68...76
Setting point w/out bumper spring
Speed rpm : 325
Rack travel in mm : 5.3
Speed rpm : 325
Rack travel in mm : 5.20...5.40
Rack travel in mm : 2.00
Speed rpm : 345...385

SET IDLE AUXILIARY SPRING Rack travel in mm : 2.00

BREAKAWAY

1st version 1mm rack travel less than

full load rack tr: 11.90 Speed rpm : 750...755

LOW IDLE

Speed rpm : 325 Rack travel in mm : 5.20...5.40

Remarks:

APPLICATION

Generator

Note remarks

Test sheet : MB 11,0 z 1 Edition : 21.08.91

Replaces : -

Test oil : ISO-4113

Combination no. : 0 401 876 788

Injection pump

Pump designation: PE6P110A320LS3835-3

EP type number : 0 411 816 773

Governor

Governor design. : RSV350...1050P0A531-

3

Governer no. : 0 421 833 363

Customer—spec. information Customer : MB-NFZ

Engine : OM 441

1st version kW : 160.0

TEST BENCH REQUIREMENTS

Test oil

inlet temp. °C : 38...42

Overflow valve

: 1 417 413 025

Inlet press., bar: 1.50

Overflow

quantity min. 1/h: 100...120

Test nozzle holder

assembly : 0 681 343 009

Opening

pressure, bar : 172...175

Test Lines : 1 680 750 015

Outside diameter

x Wall thickness

x Length mm : 6.00X1.50X600

(A) Injection pump setting values Insp. values in parentheses Set equal delivery quant.

per values

BEGINNING OF DELIVERY

Test pressure, bar: 25...27

Prestroke mm : 4.00...4.10 : (3.95...4.15)

Rack travel in mm : 9.00...12.00

Firing order : 6-3-5-2-4-1

Phasing : 0-60-120-180-240-300

Tolerance $+ - ^{\circ} : 0.50 (0.75)$

Time to cyl. no. : 6

BASIC SETTING

1st speed rpm: 1050

Rack travel in mm : 12.70...12.80

Del.quantity cm3/: 13.6...13.8

100 s: (13.3...14.0)

Spread cm3 : 0.4

100 s: (0.8)

2nd speed rpm : 350.0 Rack travel in mm : 8.3...8.9 Del.quantity cm3/: 1.2...1.8

100 s: (0.9...2.0)

Spread cm3 : 0.4 100 s: (0.7)

GUIDE SLEEVE POSITION Control-lever position

Degree: -3

Speed rpm: 800

Rack travel in mm : 0.30...0.70

Governor spring pre-tension

Click setting x : ?

FULL LOAD DELIV. AT FULL LOAD STOP

1st version

Speed rpm: 1050

Del.quantity : 136.0...138.0

1000 : (133.5...140.5)

Spread cm3 : 4.00

1000 : (8.00)

RATED SPEED

1st version

Control lever

position degrees: 88...96

Testing:

1st rack travel in: 11.70

rpm : 1070...1080 Speed 2nd rack travel in: 4.00 Speed rpm : 1115...1133 4th rack travel in: 1300 Speed rpm : 9.30...1.40 LOW IDLE 1 Control lever position degrees: 64...72 Setting point w/out bumper spring Speed rpm : 350 Rack travel in mm: 8.6 Testing: rpm : 100 Speed Minimum rack trave: 19.50
Speed rpm: 350
Rack travel in mm: 8.30...8.90
Rack travel in mm: 2.00
Speed rpm: 380...440

SET IDLE AUXILIARY SPRING Rack travel in mm : 2.00

FUEL DELIVERY CHARACTERISTICS

1st version

Speed rpm : 750 Del.quantity cm3/ : 124.0...128.0 1000 s: (121.0...131.0)

cm3 : 6.00Spread

1000 s: (8.00)

BREAKAWAY

1st version 1mm rack travel less than

full load rack tr: 11.70

rpm : 1070...1080 Speed

STARTING FUEL DELIVERY

Speed rpm : 100 Del.quantity cm3/: 140.0...160.0 1000 s: (136.0...164.0)

Remarks:

Observe VDT-I-420/120

APPLICATION

Excavator

Note remarks

: MAN 11,9a46 Test sheet : 21.08.91 Edition

Replaces

: ISO-4113 Test oil

: 0 402 036 087 Combination no.

Injection pump

: PES6P120A720/3LS470-Pump designation

: 0 412 026 050 EP type number

Governor

Governor design. : RQ300/1050PA813-21

: 0 421 801 605 Governer no.

Customer-spec. information Customer : MAN

: D2866TUH/001 Engine

: 222.0 1st version kW : 2100 Rated speed

TEST BENCH REQUIREMENTS

Test oil

inlet temp. °C : 38...42

Overflow valve

: 1 417 413 025

Inlet press., bar: 1.50

Test nozzle holder

: 1 688 901 019 assembly

Opening

: 207...210 pressure, bar

Orifice plate

diameter mm : 0,8

Test lines : 1 680 750 067

Outside diameter x Wall thickness

: 6.00X1.50X1000 x Length mm

(A) Injection pump setting values Insp. values in parentheses Set equal delivery quant.

per values ___

BEGINNING OF DELIVERY

Test pressure, bar: 30...32

Prestroke mm : 2.80...2.90

: (2.75...2.95)

Rack travel in mm : 9.00...12.00

: 6-2-4-1-5-3 Firing order

: 0-60-120-180-240-300 Phasing

: 0.50 (0.75) Tolerance + - °

Time to cyl. no. : 6

BASIC SETTING

1st speed rom: 750

Rack travel in mm : 11.20...11.30

Del.quantity cm3/: 19.5...19.7

100 s: (19.2...20.0)

cm3 : 0.5Spread

100 s: (0.9)

rpm : 300.02nd speed Rack travel in mm : 5.2...5.4 Del.quantity cm3/ : 1.7...2.3

100 s: (1.4...2.6)

cm3 : 0.8 Spread

100 s: (1.2)

GUIDE SLEEVE POSITION Control-lever position

Degree: -2 rpm : 750

Rack travel in mm : 14.70...16.30

FULL LOAD DELIV. AT FULL LOAD STOP

1st version

Speed rpm : 750 Aneroid pressure h: 1000

Del.quantity : 193.0...200.0)

: 5.00 Spread £mo

: (9.00) 1000

RATED SPEED

1st version

Setting point:

Speed rpm : 750 Rack travel in mm : 15.5 : 750

Testing:

L08

1st rack travel in: 10.20 rpm : 1095...1110 Speed 2nd rack travel in: 4.00 Speed : 1140...1170 rpm 4th rack travel in: 1300 rom : 0.00...1.00Speed LOW IDLE 1 Setting point w/out bumper spring Speed rpm : 300 Rack travel in mm : 5.3 Testing: Speed : 100 rpm Minimum rack trave: 6.70 L DUI Rack travel in mm : 5.20...5.40 Rack travel in mm : 2.00 : 390...430 Speed mon TORQUE CONTROL Dimension a mm Torque control curve - 1st version 1st speed rpm : 750 Rack travel in m: 11.60...11.70 2nd speed rpm : 1050 Rack travel in m: 11.50...11.70 Aneroid/Altitude Compensator Test 1st version Settina : 500 Speed rpm hPa : 1000 Pressure : 11.20...11.30 Rack travel mm Measurement 1/min: 500 Speed 1st pressure hPa : -Rack travel in m: 8.80...9.00
2nd pressure hPa : 270
Rack travel in m: 9.10...9.20
3rd pressure hPa : 450 Rack travel in m: 10.10...10.50 START CUT-OUT Speed 1/min : 223 (240) FUEL DELIVERY CHARACTERISTICS 1st version Aneroid pressure h: 1000 Speed rpm : 1050
Del.quantity cm3/: 204.0...208.0
1000 s: (201.0...211.0)

Aneroid pressure h: Speed rpm : 500
Del.quantity cm3/: 119.0...121.0
1000 s: (116.0...124.0)

BREAKAWAY

1st version 1mm rack travel less than

full load rack tr: 10.20 Speed rpm : 1095...1110

STARTING FUEL DELIVERY

Speed rpm : 100 Del.quantity cm3/ : 200.0...220.0 1000 s: (196.0...224.0)

LOW IDLE

Speed rpm : 300
Rack travel in mm : 5.20...5.40
Del.quantity cm3/: 17.0...23.0
1000 s: (14.0...26.0)
Spread cm3 : 8.00
1000 s: (12.00)

Remarks:

: MAN-NR. 3-7167

Setting and blocking of pointer of start-of-delivery sensor on cyl. 6 start of delivery

APPLICATION

Omnibus

Note remarks

: FIA 7,7 a : 23.08.91 : 26.7.91 Test sheet Edition Replaces : ISO-4113 Test oil

: 0 402 046 815 Combination no.

Injection pump

Pump designation : PES6P120A720RS3249

EP type number : 0 412 026 737

Governor

Governor design. : RQV300...1100PA954K

: 0 421 815 243 Governer no.

Customer-spec. information : IVECO-UNIC Customer

: 8360.46.417 Engine

: 196.0 1st version kW : 2200 Rated speed

TEST BENCH REQUIREMENTS

Test oil

inlet temp. °C : 38...42

Overflow valve

: 1 417 413 025

Inlet press., bar: 1.50

Test nozzle holder

: 1 688 901 105 assembly

Opening

: 207...210 pressure, bar

Orifice plate

diameter mm : 0,8

Test Lines : 1 680 750 008

Outside diameter x Wall thickness

: 6.00x2.00x600 x Length mm

(A) Injection pump setting values Insp. values in parentheses Set equal delivery quant.

per values

BEGINNING OF DELIVERY

Test pressure, bar: 25...27

: 3.50...3.60 Prestroke mm : (3.45...3.65)

Rack travel in mm : 9.00...12.00

: 1-5-3-6-2-4 Firing order

: 0-60-120-180-240-300 Phasina

Tolerance + - ° : 0.50 (0.75)

Time to cyl. no. : 1

BASIC SETTING

rpm: 1100 1st speed

Rack travel in mm : 12.50...12.60

Del.quantity cm3/: 21.1...21.3

100 s: (20.8...21.6)

cm3 : 0.5Spread

100 s: (0.9)

rpm : 300.02nd speed Rack travel in mm: 4.0...4.4 Del.quantity cm3/: 2.0...2.6

100 s: (1.7...2.9)

Spread cm3 : 0.8 100 s: (1.2)

(B) Setting of injection pump with governor

GUIDE SLEEVE TRAVEL

rpm : 1160 1st speed

: 10.60...10.80 travel mm

rpm : 300 2nd speed

: 1.00...1.40 travel mm

rpm : 850 3rd speed

: 6.60...7.00 travel mm

rpm : 1350 4th speed

: 13.00...14.00 travel mm

GUIDE SLEEVE POSITION Control-Lever position

Degree: -1 Speed rpm: 1150 Rack travel in mm: 15.20...17.80

FULL LOAD DELIV. AT FULL LOAD STOP

1st version

rpm : 1100 Speed Aneroid pressure h: 1500

Del.quantity : 211.0...2.0... 1000 : (208.0...216.0)

cm3 : 5.00 1000 : (9.00) Spread

RATED SPEED

1st version Control lever

position degrees: 117...125

Testing:

1st rack travel in: 11.60

Speed rpm : 1140...1150 2nd rack travel in: 4.00

Speed rpm : 1215...1245 4th rack travel in: 1400

rpm : 0.00...1.00Speed

LOW IDLE 1 Control Lever

position degrees: 49...57

Testing:

Speed : 100 rom Minimum rack trave: 5.70 rpm : 300 Speed

Rack travel in mm : 4.10...4.30

Rack travel in mm: 2.00 Speed rom : 330...390

TORQUE CONTROL Dimension a mm :?

Torque control curve - 1st version

1st speed rpm : 1100

Rack travel in m: 12.50...12.60

2nd speed rpm : 700

Rack travel in m: 11.40...11.70

3rd speed rpm : 300

Rack travel in m: 9.00...9.30

Aneroid/Altitude Compensator Test

1st version

Setting

rpm : 1100 Speed hPa : 1500 Pressure

Rack travel mm : 12.60...14.00

Measurement

1/min: 1100 Speed

1st pressure hPa : -Rack travel in m: 8.10...8.30

2nd pressure hPa : 810

Rack travel in m: 11.40...11.50 3rd pressure hPa : 430

Rack travel in m: 9.00...9.30

START CUT-OUT

1/min: 240 (260) Speed

FUEL DELIVERY CHARACTERISTICS

1st version

Aneroid pressure h: 1500

: 700 rpm

Del.quantity cm3/: 182.0...188.0 1000 s: (179.0...191.0)

Aneroid pressure h: -

rpm_ : 500 Speed

Del.quantity cm3/: 96.0...98.0 1000 s: (93.0...101.0)

BREAKAWAY

1st version

1mm rack travel less than

full load rack tr: 11.60

rpm : 1140...1150 Speed

STARTING FUEL DELIVERY

Speed rpm : 100

Del.quantity cm3/: 100.0...120.0

1000 s: (96.0...124.0)

LOW IDLE

rpm : 300 Speed

Rack travel in mm : 4.00...4.40

Del.quantity cm3/: 20.0...26.0 1000 s: (17.0...29.0)

cm3 : 8.00 Spread

1000 s: (12.00)

Remarks:

Setting and blocking of pointer of start-of-delivery sensor on cyl. 1

start of delivery

BOSCH INJ. PUMP TEST SPECIFICATIONS Note remarks : RVI 12,0 j : 23.08.91 Test sheet Edition : 14.12.90 Replaces : ISO-4113 Test oil : 0 402 046 819 Combination no. Injection pump Pump designation : PES6P120A320RS3269 EP type number : 0 412 026 743 Governor Governor design. : RQV275...1000PA983 : 0 421 813 903 Governer no. Customer-spec. information Customer : RVI : MIDR 06 35 40 L Engine : 283.0 1st version kW : 2000 Rated speed TEST BENCH REQUIREMENTS Test oil inlet temp. °C : 38...42 Overflow valve : 1 417 413 025 Inlet press., bar: 1.50 Test nozzle holder : 1 688 901 019 assembly Openina : 207...210 pressure, bar Orifice plate diameter mm : 0,8 : 1 680 750 067 Test lines

: (3.45...3.65) Rack travel in mm : 9.00...12.00 : 1-5-3-6-2-4 Firing order Phasing : 0-60-120-180-240-300 Tolerance + - ° : 0.50 (0.75) BASIC SETTING 1st speed rpm: 600 Rack travel in mm : 13.00...13.10 Del.quantity cm3/: 25.4...25.6 100 s: (25.1...25.9) cm3 : 0.5Spread 100 s: (0.9) rpm : 275.0 2nd speed Rack travel in mm : 5.5...5.9 Del.quantity cm3/: 2.3...2.9 100 s: (2.0...3.2) cm3 : 0.8Spread 100 s: (1.2) (B) Setting of injection pump with governor GUIDE SLEEVE TRAVEL rpm : 1070 1st speed : 7.70...7.90 travel mm 2nd speed man : 0.70...1.10 travel mm 3rd speed : 500 rpm : 3.50...4.10 travel mm : 750 4th speed man : 5.30...5.70 travel mm 5th speed : 1450 rpm : 11.00...12.00 travel mm GUIDE SLEEVE POSITION Control-lever position Degree: -1 rpm : 1125 Speed Rack travel in mm : 15.20...17.80 FULL LOAD DELIV. AT FULL LOAD STOP 1st version Speed rpm : 600 Aneroid pressure h: 1000 Del.quantity : 254.0...259.0)

: 3.50...3.60

Prestroke mm

Outside diameter x Wall thickness

per values

BEGINNING OF DELIVERY

Test pressure, bar: 25...27

x Length mm

: 6.00x1.50x1000

(A) Injection pump setting values

Insp. values in parentheses Set equal delivery quant.

cm3 : 5.00 1000 : (9.00) Spread

RATED SPEED

1st version Control lever

position degrees: 296...304

Testing:

1st rack travel in: 12.00 Speed rpm : 1065...1075

2nd rack travel in: 4.00 rpm : 1190...1220 Speed

4th rack travel in: 1350

rpm : 0.00...1.00Speed

LOW IDLE 1 Control Lever

position degrees: 247...255

Testing:

Speed rom Minimum rack trave: 7.40 rpm : 275 Speed

Rack travel in mm : 5.60...5.80

CONSTANT REGULATION

rpm : 310...420 Speed

Aneroid/Altitude Compensator Test

1st version Setting

rpm : 500 Speed Pressure hPa : 1000

Rack travel mm : 13.00...13.10

Measurement

1/min: 500 Speed

1st pressure hPa : -

Rack travel in m: 9.40...9.80

2nd pressure hPa : 440

Rack travel in m: 12.40...12.60

3rd pressure hPa : 200

Rack travel in m: 10.30...10.70

START CUT-OUT

1/min: 195 (215) Speed

FUEL DELIVERY CHARACTERISTICS

1st version

Aneroid pressure h: 1000 rpm : 1000 Speed

L13

Del.quantity cm3/: 242.0...248.0

1000 s: (239.0...251.0)

Aneroid pressure h: -

Speed rpm : 50°C Del.quantity cm3/ : 129.0...131.0 1000 s: (126.0...134.0)

BREAKAWAY

1st version

1mm rack travel less than

full load rack tr: 12.00

rpm : 1065...1075 Speed

STARTING FUEL DELIVERY

rpm : 100 Speed

Del.quantity cm3/: 140.0...160.0 1000 s: (136.0...164.0)

LOW IDLE

rpm : 275 Speed

Rack travel in mm: 5.50...5.90 Del.quantity cm3/: 23.0...29.0 1000 s: (20.0...32.0)

cm3 : 8.00 Spread 1000 s: (12.00)

Remarks:

Setting and blocking of pointer of start-of-delivery sensor on cyl. 1

start of delivery

Note remarks

: UNI 9,5 h Test sheet : 21.08.91 Edition : 26.7.91 Replaces

: ISO-4113 Test oil

: 0 402 046 821 Combination no.

Injection pump

Pump designation : PES6P120A720RS3273

: 0 412 026 746 EP type number

Governor

Governor design. : RQV450...1100PA989

Governer no. : 0 421 813 918

Customer-spec. information : IVECO-UNIC Customer

: 8465,21,004 Engine

TEST BENCH REQUIREMENTS

Test oil

inlet temp. °C : 38...42

Overflow valve

: 1 417 413 025

Inlet press., bar: 1.50

Test nozzle holder

: 1 688 901 019 assembly

Opening

: 207...210 pressure, bar

Orifice plate

: 0,8 diameter mm

: 1 680 750 075 Test lines

Outside diameter x Wall thickness

x Length mm : 8.00x2.50x1000

(A) Injection pump setting values Insp. values in parentheses Set equal delivery quant.

per values

BEGINNING OF DELIVERY

Test pressure, bar: 25...27

: 3.50...3.60 Prestroke mm

: (3.45...3.65)

Rack travel in mm : 9.00...12.00

: 1-5-3-6-2-4 Firing order

: 0-60-120-180-240-300 Phasing

Tolerance + - ° : 0.50 (0.75)

BASIC SETTING

1st speed rpm: 1100

Rack travel in mm : 9.90...10.00

Del.quantity cm3/: 15.5...15.7

100 s: (15.2...16.0)

cm3 : 0.5Spread

100 s: (0.9)

rpm : 400.02nd speed Rack travel in mm : 4.8...5.2 Del.quantity cm3/ : 2.0...2.6

100 s: (1.7...2.9)

Spread cm3 : 0.8100 s: (1.2)

(B) Setting of injection pump with governor

GUIDE SLEEVE TRAVEL

rpm : 1145 1st speed

: 7.90...8.10 : 450 travel mm man

2nd speed : 0.70...1.10 travel mm

3rd speed : 650 rpm

: 3.90...4.50 travel mm

rom : 950 4th speed

: 6.60...7.00 travel mm

5th speed : 1500 rpm

: 11.00...12.00 travel mm

GUIDE SLEEVE POSITION

Control-lever position

Degree: -1

rpm : 1180 Speed

Rack travel in mm : 15.20...17.80

FULL LOAD DELIV. AT FULL LOAD STOP

1st version

rpm : 1100 Speed

: 155.0...157.0 Del.quantity

: (152.0...160.0) 1000

: 5.00 Spread cm3

1000 : (9.00)

RATED SPEED

L14

1st version Control Lever

position degrees: 117...125

Testing:

1st rack travel in: 8.90

rpm : 1140...1150 Speed

2nd rack travel in: 4.00

Speed rpm : 1235...1265

4th rack travel in: 1400

rpm : 0.00...1.00Speed

LOW IDLE 1

Control Lever

position degrees: 64...72

Testing:

rpm : 100 Speed Minimum rack trave: 6.50

Speed rpm : 400 Rack travel in mm : 4.90...5.10

CONSTANT REGULATION

rpm : 450...580 Speed

BREAKAWAY

1st version 1mm rack travel less than

full load rack tr: 8.90

Speed rpm : 1140...1150

STARTING FUEL DELIVERY

Speed rpm : 100 Del.quantity cm3/ : 125.0...145.0 1000 s: (121.0...149.0)

LOW IDLE

rpm : 400

Rack travel in mm : 4.80...5.20

Del.quantity cm3/: 20.0...26.0 1000 s: (17.0...29.0)

cm3 : 8.00 Spread

1000 s: (12.00)

Remarks:

Check electrically unlatched starting

fuel delivery (EES) with 24 volt.

On activation of the starting solenoid, the start position must be reached.

L15

Note remarks

: MB 11,7 j 2 Test sheet Edition : 21.08.91 Replaces : 21.6.91 Test oil : ISO-4113

: 0 402 046 825 Combination no.

Injection pump

Pump designation : PES6P110A720LS3282

: 0 412 016 736 EP type number

Governor

Governor design. : RQ300/1100PA800-2

: 0 421 801 593 Governer no.

Customer-spec. information

Customer : MERCEDES-BENZ

Engine : 0M447 h

: 157.0 1st version kW Rated speed : 2200

TEST BENCH REQUIREMENTS

Test oil

inlet temp. °C : 38...42

Overflow valve

: 1 417 413 025

Inlet press., bar: 1.50

Overflow

quantity min. 1/h: 100...120

Test nozzle holder

: 0 681 343 009 assembly

Openina

: 172...175 pressure, bar

: 1 680 750 015 Test lines

Outside diameter x Wall thickness

: 6.00x1.50x600 x Length mm

(A) Injection pump setting values Insp. values in parentheses Set equal delivery quant.

per values

BEGINNING OF DELIVERY

Test pressure, bar: 25...27

: 4.40...4.50 Prestroke mm

: (4.35...4.55) Rack travel in mm : 19.00...21.00

: 6-2-4-1-5-3 Firing order

: 0-60-120-180-240-300 Phasing

Tolerance + - ° : 0.50 (0.75)

Time to cyl. no. : 6

BASIC SETTING

rpm: 1100 1st speed

Rack travel in mm : 13.10...13.20

Del.guantity cm3/: 13.6...13.8

100 s: (13.3...14.0)

cm3 : 0.4Spread

100 s: (0.8)

2nd speed rpm : 300.0 Rack travel in mm : 9.0...9.3

Del.quantity cm3/: 1.4...2.0 100 s: (1.1...2.3)

cm3 : 0.4Spread

100 s: (0.8)

GUIDE SLEEVE POSITION

Control-lever position

Degree: -1

rpm : 600

Rack travel in mm : 13.50...14.50

FULL LOAD DELIV. AT FULL LOAD STOP

1st version

rpm : 1100 Speed

: 136.0...138.0 Del.quantity

1000 : (133.5...140.5)

: 4.00 Spread cm3

1000 : (8.00)

RATED SPEED

1st version

Setting point:

: 600 Speed rpm

Rack travel in mm: 14.0

Testina:

1st rack travel in: 12.10

rpm : 1140...1150 Speed

2nd rack travel in: 4.00 Speed rpm : 1190...1220 4th rack travel in: 1250 rpm : 0.00...2.40 Speed LOW IDLE 1 Setting point w/out bumper spring Speed rpm : 300 Rack travel in mm : 7.3 Testing: Speed rpm : 200 Minimum rack trave: 8.80 Speed rpm : 300 Rack travel in mm : 7.20...7.40 Rack travel in mm : 2.00 rpm : 370...410 Speed FUEL DELIVERY CHARACTERISTICS 1st version Speed rpm : 600 Del.quantity cm3/: 113.0...116.0 1000 s: (110.0...119.0) cm3 : 5.00 Spread 1000 s: (9.00) **BREAKAWAY** 1st version 1mm rack travel less than full load rack tr: 12.10 Speed rpm : 1140...1150 STARTING FUEL DELIVERY Speed rpm : 100 Del.quantity cm3/ : 130.0...150.0 1000 s: (126.0...154.0) Remarks:

BOSCH INJ. PUMP TEST SPECIFICATIONS Note remarks Test sheet : MB 11,7 j 3 : 21.08.91 Edition : 5.7.91 Replaces : ISO-4113 Test oil Combination no. : 0 402 046 826 Injection pump Pump designation : PES6P110A720LS3282 : 0 412 016 736 EP type number Governor Governor design. : RQ300/1100PA786-2 : 0 421 801 576 Governer no. Customer-spec. information Customer : MERCEDES-BENZ Engine : 0M447 h 1st version kW : 157.0 : 2200 Rated speed TEST BENCH REQUIREMENTS Test oil inlet temp. °C : 38...42 Overflow valve : 1 417 413 025 Inlet press., bar: 1.50 Overflow quantity min. 1/h: 100...120 Test nozzle holder : 0 681 343 009 assembly **Opening** pressure, bar : 172...175 Test Lines : 1 680 750 015

Outside diameter x Wall thickness : 6.00X1.50X600 (A) Injection pump setting values Insp. values in parentheses Set equal delivery quant. per values

x Length mm BEGINNING OF DELIVERY Test pressure, bar: 25...27 L18

: 4.40...4.50 : (4.35...4.55) Prestroke mm Rack travel in mm : 19.00...21.00 : 6-2-4-1-5-3 Firing order

: 0-60-120-180-240-300 Phasing Tolerance + - ° : 0.50 (0.75)

Time to cyl. no. : 6

BASIC SETTING

rpm: 1100 1st speed Rack travel in mm : 13.00...13.10 Del.quantity cm3/: 13.6...13.8

100 s: (13.3...14.0) Spread cm3 : 0.4100 s: (0.8)

rpm : 300.02nd speed Rack travel in mm: 9.0...9.3 Del.quantity cm3/ : 1.4...2.0

100 s: (1.1...2.3) Spread cm3 : 0.4100 s: (0.8)

GUIDE SLEEVE POSITION Control-lever position Degree: -1

Speed rpm: 600 Rack travel in mm: 13.50...14.50

FULL LOAD DELIV. AT FULL LOAD STOP

1st version rpm : 1100 Speed

Deliquantity : 136.0...138.0 1000 : (133.5...140.5)

: 4.00 Spread cm3 1000 : (8.00)

RATED SPEED

1st version

Setting point: Speed rpm Rack travel in mm: 14.0

Testing: 1st rack travel in: 12.00 Speed rpm : 1140...1150

2nd rack travel in: 4.00

rpm : 1190...1220 Speed

4th rack travel in: 1250

rpm : 0.00...2.40 Speed

LOW IDLE 1

Setting point w/out bumper spring

Speed rpm : 300 Rack travel in mm : 7.3

Testing:

rpm : 200 Speed Minimum rack trave: 8.80

Speed rpm: 300
Rack travel in mm: 7.20...7.40
Rack travel in mm: 2.00
Speed rpm: 370...410

FUEL DELIVERY CHARACTERISTICS

1st version

Speed rpm : 600 Del.quantity cm3/: 113.0...116.0

1000 s: (110.0...119.0)

cm3 : 5.00 Spread

1000 s: (9.00)

BREAKAWAY

1st version

1mm rack travel less than

full load rack tr: 12.00

rpm : 1140...1150 Speed

STARTING FUEL DELIVERY

rpm : 100 Speed

Del.quantity cm3/: 130.0...150.0 1000 s: (126.0...154.0)

Remarks:

Note remarks

Test sheet : MB 14,7 t 2 : 21.06.91 Edition

Replaces

: ISO-4113 Test oil

: 0 402 648 889 Combination no.

Injection pump

Pump designation : PE8P120A320LS7816

EP type number : 0 412 628 829

Governor

: RQ300/950PA932-2 Governor design. : 0 421 801 526 Governer no.

: T3 Cust. part no.

Customer-spec. information

Customer : MERCEDES-BENZ

Engine : 0M442 LA

: 362.0 1st version kW : 1900 Rated speed

TEST BENCH REQUIREMENTS

Test oil

inlet temp. °C : 38...42

Overflow valve

: 1 417 413 025

Inlet press., bar: 1.50

Overflow

quantity min. 1/h: 100...120

Test nozzle holder

: 1 688 901 019 assembly

Opening

pressure, bar : 207...210

Orifice plate

diameter mm : 0,8

Test lines : 1 680 750 067

Outside diameter

x Wall thickness

: 8.00x2.50x1000 x Length mm

(A) Injection pump setting values Insp. values in parentheses Set equal delivery quant.

per values ____

BEGINNING OF DELIVERY

Test pressure, bar: 25...27

: 5.20...5.30 : (5.15...5.35) Prestroke mm

Rack travel in mm : 20.00...21.00

: 8-7-2-6-3-5-Firing order

Phasing : 0-45-90-135-180-225-

270-315

: 0.50 (0.75) Tolerance + - °

Time to cyl. no. : 8

BASIC SETTING

1st speed rpm : 600

Rack travel in mm : 14.60...14.80

Del.quantity cm3/: 25.4...25.6

100 s: (25.1...25.9)

cm3 : 0.6Spread

100 s: (0.9)

2nd speed rpm : 300.0
Rack travel in mm : 5.9...6.5
Del.quantity cm3/ : 1.3...1.9
100 s: (1.0...2.2)
Spread cm3 : 0.6

100 s: (1.0)

GUIDE SLEEVE POSITION Control-lever position

Degree: -2 rpm : 600 Speed

Rack travel in mm : 19.20...20.80

FULL LOAD DELIV. AT FULL LOAD STOP

1st version

Speed rpm : 600 Aneroid pressure h: 1000

Aneroid E. Del.quantity 1000 : 254.0...256.0 : (251.0...259.0)

: 6.00 Spread cm3

1000 : (9.00)

RATED SPEED

1st version Setting point: : 600 Speed rpm Rack travel in mm: 20.0 Testing: 1st rack travel in: 14.20 rpm : 990...1005 Speed 2nd rack travel in: 4.00 rpm : 1070...1100 Speed 4th rack travel in: 1150 rpm : 0.00...1.50 Speed LOW IDLE 1 Setting point w/out bumper spring rpm Rack travel in mm: 6.2 Testing: Speed rpm Minimum rack trave: 7.80 : 300 Speed rpm Rack travel in mm: 5.90...6.50 Rack travel in mm: 2.00 : 380...420 Speed rom TORQUE CONTROL Dimension a mm : 0.90 2nd speed rpm : 950 Rack travel in m: 15.20...15.40 rpm : 800 3rd speed Rack travel in m: 15.50...15.70 Aneroid/Altitude Compensator Test 1st version Setting Speed : 600 rpm hPa : 1000 Pressure : 14.60...14.80 Rack travel mm Measurement 1/min: 600 Speed 1st pressure hPa : 350 Rack travel in m: 11.60...11.80 2nd pressure hPa : 700 Rack travel in m: 13.80...14.00 3rd pressure hPa : 1200 Rack travel in m: 14.80...15.00 4th pressure hPa : 1300 Rack travel in m: 15.20...15.40 5th pressure hPa : -Rack travel in m: 10.20...10.50 FUEL DELIVERY CHARACTERISTICS

1st version Aneroid pressure h: 1600 : 950 Speed rpm Del.quantity cm3/: 270.0...273.0 1000 s: (267.0...276.0) cm3 : 8.00 Spread 1000 s: (12.0) Aneroid pressure h: 1600 Speed rpm : 800 Del.quantity cm3/ : 270.0...274.0 1000 s: (267.0...277.0) cm3 : 8.00 Spread 1000 s: (12.0) Aneroid pressure h: rpm : 500 Speed Del.quantity cm3/: 145.0...147.0 1000 s: (142.0...150.0) cm3 : 8.00Spread 1000 s: (12.0)

BREAKAWAY

1st version 1mm rack travel less than

full load rack tr: 14.20 Speed rpm : 990...1005

STARTING FUEL DELIVERY

Speed rpm: 100 Del.quantity cm3/: 240.0...260.0

1000 s: (236.0...264.0)

Remarks:

L21

Note remarks

: MB 14,7 a22 Test sheet Edition : 21.06.91 : 24.4.91 Replaces Test oil : ISO-4113

Combination no. : 0 402 648 890

Injection pump

Pump designation : PE8P120A320LS7801 : 0 412 628 806 EP type number

Governor

Governor design. : RQ300/950PA932-4 : 0 421 801 533 Governer no.

Customer-spec. information

Customer : MERCEDES-BENZ

: 0M442 A Engine

: 269.0 1st version kW : 1900 Rated speed

TEST BENCH REQUIREMENTS

Test oil

inlet temp. °C : 38...42

Overflow valve

: 1 417 413 025

Inlet press., bar: 1.50

Overflow

quantity min. 1/h: 100...120

Test nozzle holder

: 1 688 901 105 assembly

Opening .

: 207...210 pressure, bar

Orifice plate

: 0,8 diameter mm

: 1 680 750 075 Test lines

Outside diameter

x Wall thickness

: 8.00x2.50x1000 x Length mm

(A) Injection pump setting values Insp. values in parentheses Set equal delivery quant.

per values ____

BEGINNING OF DELIVERY

Test pressure, bar: 25...27

Prestroke mm : 5.20...5.30

: (5.15...5.35)

Rack travel in mm : 20.00...21.00 : 8- 7- 2- 6- 3- 5-Firing order

: 0-45-90-135-180-225-Phasing

270-315

Tolerance + - ° : 0.50 (0.75)

Time to cyl. no. : 8

BASIC SETTING

rpm : 500 1st speed

Rack travel in mm : 14.00...14.20

Del.quantity cm3/: 20.3...20.5

100 s: (20.0...20.8)

cm3 : 0.5Spread

100 s: (0.9)

2nd speed rpm : 300.0Rack travel in mm: 6.0...6.4

Del.quantity cm3/: 1.6...2.2

100 s: (1.3...2.5) cm3 : 0.6Spread

100 s: (1.0)

GUIDE SLEEVE POSITION Control-lever position

Degree: -2

rpm : 600 Speed

Rack travel in mm : 19.20...20.80

FULL LOAD DELIV. AT FULL LOAD STOP

1st version

Speed rpm : 500 Aneroid pressure h: 800

Del.quantity : 203.0...208.0)

: 5.00 Spread

1000 : (9.00)

RATED SPEED

1st version

Setting point:

: 600 Speed rpm

Rack travel in mm: 20.0 Testing: 1st rack travel in: 11.90 rpm : 990...1000 Speed 2nd rack travel in: 4.00 rpm : 1060...1090 Speed 4th rack travel in: 1200 rpm : 0.00...1.50Speed LOW IDLE 1 Setting point w/out bumper spring rpm : 300 Rack travel in mm: 6.2 Testing: : 200 Speed rpm Minimum rack trave: 8.00 : 300 Speed rpm Rack travel in mm : 6.00...6.40 Rack travel in mm: 2.00 : 380...420 Speed rom TORQUE CONTROL : 0.75 Dimension a mm rpm : 950 2nd speed Rack travel in m: 12.90...13.10 3rd speed rpm : 800 Rack travel in m: 14.20...14.40 Aneroid/Altitude Compensator Test 1st version Setting : 600 Speed man hPa : 800 Pressure : 14.00...14.20 Rack travel mm Measurement 1/min: 600 Speed 1st pressure hPa : 350 Rack travel in m: 11.80...12.00 2nd pressure hPa : 500 Rack travel in m: 13.30...13.60 3rd pressure hPa : 950 Rack travel in m: 14.10...14.20 * 4th pressure hPa : -Rack travel in m: 18.60...11.00 FUEL DELIVERY CHARACTERISTICS 1st version Aneroid pressure h: 1150 rpm : 950 Speed Del.quantity cm3/: 189.0...192.0 1000 s: (186.0...195.0)

Spread cm3 : 8.00 1000 s: (12.0) Aneroid pressure h: 1150 Speed rpm: 750
Del.quantity cm3/: 211.0...214.0
1000 s: (208.0...217.0) cm3 : 8.00 Spread 1000 s: (12.0) Aneroid pressure h: -: 500 Speed rpm Del.quantity cm3/: 136.0...138.0 1000 s: (133.0...141.0) cm3 : 8.00 Spread 1000 s: (12.0)

BREAKAWAY

1st version 1mm rack travel less than

full load rack tr: 11.90 Speed rpm : 990...1000

Remarks:

* Increase in control-rod travel with respect to setting at least 0.1 mm

Note remarks

: MB 14,7 a32 Test sheet : 21.06.91 Edition

Replaces : ISO-4113 Test oil

: 0 402 648 890 Combination no.

Injection pump

Pump designation : PE8P120A320LS7801

: 0 412 628 806 EP type number

Governor

Governor design. : RQ300/950PA932-4

Governer no.

: 0 421 801 533

Cust. part no. : T3

Customer-spec. information

Customer : MERCEDES-BENZ

: 0M442 A Engine

: 269.0 1st version kW : 1900 Rated speed

TEST BENCH REQUIREMENTS

Test oil

: 38...42 inlet temp. °C

Overflow valve

: 1 417 413 025

Inlet press., bar: 1.50

Overflow

quantity min. 1/h: 100...120

Test nozzle holder

: 1 688 901 019 assembly

Opening 1

: 207...210 pressure, bar

Orifice plate

diameter mm : 0.8

: 1 680 750 067 Test lines

Outside diameter

x Wall thickness

: 6.00x1.50x1000 x Length mm

(A) Injection pump setting values Insp. values in parentheses Set equal delivery quant. per values

BEGINNING OF DELIVERY

Test pressure, bar: 25...27

: 5.20...5.30 Prestroke mm : (5.15...5.35)

Rack travel in mm : 20.00...21.00 Firing order : 8-7-2-6-3-5-

: 0-45-90-135-180-225-Phasing

270-315

Tolerance + - ° : 0.50 (0.75)

Time to cyl. no. : 8

BASIC SETTING

rpm: 500 1st speed

Rack travel in mm : 14.00...14.20

Del.quantity cm3/: 20.1...20.3

100 s: (19.8...20.6)

cm3 : 0.5Spread

100 s: (0.9)

rpm : 300.0 2nd speed Rack travel in mm: 6.0...6.4 Del.quantity cm3/: 1.6...2.2

100 s: (1.3...2.5)

cm3 : 0.6Spread

100 s: (1.0)

GUIDE SLEEVE POSITION Control-lever position

Degree: -2

rpm : 600 Speed

Rack travel in mm : 19.20...20.80

FULL LOAD DELIV. AT FULL LOAD STOP

1st version

rpm : 500 Speed Aneroid pressure h: 800

Del.quantity : 201.0...206.0)

: 5.00 cm3 Spread

1000 : (9.00)

RATED SPEED

1st version

Setting point:

: 600 Speed man Rack travel in mm: 20.0

Testing:

1st rack travel in: 11.90

rpm : 990...1000 Speed

2nd rack travel in: 4.00

rpm : 1060...1090 Speed

4th rack travel in: 1200

Speed rom : 0.00...1.50

LOW IDLE 1

Setting point w/out bumper spring

: 300 Speed וחכרו

Rack travel in mm: 6.2

Testina:

: 200 Speed rom

Minimum rack trave: 8.00

Speed rpm : 300 Rack travel in mm : 6.00...6.40

Rack travel in mm: 2.00

Speed man : 380...420

TORQUE CONTROL

Dimension a mm : 0.75 : 950

2nd speed rpm

Rack travel in m: 12.90...13.10

3rd speed rpm : 800

Rack travel in m: 14.20...14.40

Aneroid/Altitude Compensator Test

1st version

Setting

: 600 Speed rpm

hPa : 800 Pressure

: 14.00...14.20 Rack travel mm

Measurement

1/min: 600 Speed

1st pressure hPa : 350

Rack travel in m: 11.80...12.00

2nd pressure hPa : 500

Rack travel in m: 13.30...13.60

3rd pressure hPa : 950

Rack travel in m: 14.10...14.20 *

4th pressure hPa : -

Rack travel in m: 10.60...11.00

FUEL DELIVERY CHARACTERISTICS

1st version

Aneroid pressure h: 1150

Speed rpm : 950 Del.quantity cm3/: 190.0...193.0 1000 s: (187.0...196.0)

cm3 : 8.00 Spread

1000 s: (12.0) Aneroid pressure h: 1150

: 750 Speed man

Del.quantity cm3/: 216.0...219.0

1000 s: (213.0...222.0)

cm3 : 8.00 Spread

1000 s: (12.0)

Aneroid pressure h: -

Speed rpm : 500
Del.quantity cm3/: 138.0...140.0
1000 s: (135.0...143.0)

cm3 : 8.00 Spread

1000 s: (12.0)

BREAKAWAY

1st version

1mm rack travel less than

full load rack tr: 11.90

rpm : 990...1000 Speed

* Increase in control-rod travel with respect to setting at least 0.1 mm

Note remarks

Test sheet : MB 14,7 a33 : 28.06.91 Edition

Replaces

Test oil : ISO-4113

: 0 402 648 892 Combination no.

Injection pump

Pump designation : PE8P120A320LS7801-1

EP type number : 0 412 628 818

Governor

Governor design. : RQV350...950PA866-11

: D 421 813 946 Governer no.

Customer-spec. information

: MERCEDES-BENZ Customer

Engine : 0M442 A

1st version kW : 266.0 : 1900 Rated speed

TEST BENCH REQUIREMENTS

Test oil

inlet temp. °C : 38...42

Overflow valve

: 1 417 413 025

Inlet press., bar: 1.50

Overflow

quantity min. 1/h: 100...120

Test nozzle holder

: 1 688 901 019 assembly

Opening

pressure, bar : 207...210

Orifice plate

diameter mm : 0,8

Test lines : 1 680 750 067

Outside diameter

x Wall thickness

x Length mm : 6.00X1.50X1000

(A) Injection pump setting values Insp. values in parentheses Set equal delivery quant.

per values ____

BEGINNING OF DELIVERY

Test pressure, bar: 25...27

: 5.20...5.30 Prestroke mm

: (5.15...5.35)

Rack travel in mm : 20.00...21.00

: 8-7-2-6-3-5-Firing order

: 0-45-90-135-180-225-Phasing

270-315

Tolerance + - ° : 0.50 (0.75)

Time to cyl. no. : 8

BASIC SETTING

Spread

1st speed rpm: 600

Rack travel in mm : 14.00...14.20

Del.quantity cm3/: 20.0...20.2

100 s: (19.7...20.5)

cm3 : 0.5

100 s: (0.9)

rpm : 350.0 2nd speed

Rack travel in mm : 5.5...6.1

Del.quantity cm3/ : 1.6...2.2

100 s: (1.3...2.5)

Spread cm3 : 0.6100 s: (1.0)

(B) Setting of injection pump

with governor

GUIDE SLEEVE TRAVEL

1st speed rpm : 350

: 1.30...1.80 travel mm

rpm : 424 2nd speed

2.30...2.80 travel mm

rpm : 700 3rd speed

: 4.10...4.60 travel mm

rpm : 1008 4th speed

: 7.90...8.40 travel mm

5th speed rpm: 1220

: 11.00...12.00 travel mm

GUIDE SLEEVE POSITION

Control-lever position

Degree: -1 rpm : 1025 Speed

Rack travel in mm : 16.50...18.00

FULL LOAD DELIV. AT FULL LOAD STOP

Rack travel in m: 13.40...13.60 3rd pressure hPa : 900 Rack travel in m: 14.10...14.20 * 1st version rpm : 600 Speed Aneroid pressure h: 650 4th pressure hPa : -Del.quantity : 200.0...205.0) Rack travel in m: 11.50...11.80 : 5.00 START CUT-OUT Spread cm3 1000 : (9.00) 1/min: 270 (290) Speed RATED SPEED FUEL DELIVERY CHARACTERISTICS 1st version Control lever position degrees: 117...125 1st version Aneroid pressure h: 1100 rpm : 950 Speed Testing: Del.quantity cm3/: 190.0...193.0 1000 s: (187.0...196.0) 1st rack travel in: 12.20 Speed rpm : 990...1000 2nd rack travel in: 4.00 cm3 : 8.00 Spread Speed rpm: 1075...1105 4th rack travel in: 1150 1000 s: (12.0) Aneroid pressure h: 1100 Speed rpm : 750
Del.quantity cm3/ : 213.0...217.0
1000 s: (210.0...220.0) rpm : 0.00...1.50Speed LOW IDLE 1 cm3 : 8.00Control lever Spread 1000 s: (12.0) position degrees: 66...74 Aneroid pressure h: 1100 rpm : 950 Testing: Speed Del.quantity cm3/: 163.0...165.0 1000 s: (160.0...168.0) Speed rpm : 100 Minimum rack trave: 7.40 rpm : 350 cm3 : 8.00Spread Rack travel in mm : 5.50...6.10 1000 s: (12.0) Aneroid pressure h: rpm : 500 CONSTANT REGULATION Speed Del.quantity cm3/: 147.0...149.0 1000 s: (144.0...152.0) rpm : 350...550 Speed cm3 : 8.00 TORQUE CONTROL Spread 1000 s: (12.0) : 950 2nd speed rpm Rack travel in m: 13.20...13.40 3rd speed rpm : 900 Rack travel in m: 13.50...13.60 **BREAKAWAY** rpm : 800 4th speed Rack travel in m: 14.30...14.50 1st version 1mm rack travel less than Aneroid/Altitude full load rack tr: 12.20 Compensator Test rpm : 990...1000 Speed STARTING FUEL DELIVERY 1st version Setting : 600 Speed rpm Pressure hPa : 650 Speed : 100 rpm Del.quantity cm3/: 200.0...220.0 1000 s: (196.0...224.0) : 14.00...14.20 Rack travel mm Measurement 1/min: 600 Remarks: Speed 1st pressure hPa : 300 Rack travel in m: 12.30...12.50 * Increase in control-rod trave' with 2nd pressure hPa : 375 respect to setting at least 0.

L27

Note remarks

: MB 12,8 o Test sheet : 30.08.91 Edition : 26.4.91 Replaces : ISO-4113 Test oil

Combination no. : 0 402 648 893

Injection pump

Pump designation : PE8P120A320LS7835 : 0 412 628 847 EP type number

Governor

Governor design. : RQ300/950PA971-2 : 0 421 801 548 Governer no.

Customer-spec. information

: MERCEDES-BENZ Customer

: 0M402 A Engine

1st version kW : 280.0 Rated speed : 1900

TEST BENCH REQUIREMENTS

Test oil

inlet temp. °C : 38...42

Overflow valve

: 1 417 413 025

Inlet press., bar: 1.50

Overflow

quantity min. 1/h: 100...120

Test nozzle holder

: 1 688 901 105 assembly

Openina

: 207...210 pressure, bar

Orifice plate

diameter mm 3,0:

Test lines : 1 680 750 075

Outside diameter x Wall thickness

x Length mm : 8.00x2.50x1000

(A) Injection pump setting values Insp. values in parentheses Set equal delivery quant.

per values ____

BEGINNING OF DELIVERY

Test pressure, bar: 25...27

: 5.50...5.60 Prestroke mm

: (5.45...5.65) Rack travel in mm : 20.00...21.00

: 8-7-2-6-3-5-Firing order

: 0-45-90-135-180-225-Phasing

270-315

: 0.50 (0.75) Tolerance + - °

Time to cyl. no. : 8

BASIC SETTING

1st speed rpm: 600

Rack travel in mm : 14.20...14.40

Del.quantity cm3/: 22.5...22.7

100 s: (22.2...23.0)

cm3 : 0.6Spread

100 s: (0.9)

rpm : 300.02nd speed

Rack travel in mm: 6.2...6.8 Del.quantity cm3/: 1.6...2.2

100 s: (1.3...2.5)

cm3 : 0.6 Spread

100 s: (1.0)

GUIDE SLEEVE POSITION Control-lever position

Degree: -2

rpm : 600 Speed

Rack travel in mm : 19.20...20.80

FULL LOAD DELIV. AT FULL LOAD STOP

1st version

Speed rpm : 600 Aneroid pressure h: 1000

225.0...227.0 1000 : (222.0...230.0) Del.quantity

: 6.00 cm3

Spread 1000 : (9.00)

RATED SPEED

1st version

Setting point:

Speed -: 600 rpm

Rack travel in mm: 20.0 Testing: 1st rack travel in: 13.00 Speed rpm : 990...1005 2nd rack travel in: 4.00 Speed rpm : 1070...1100 4th rack travel in: 1150 rpm : 0.00...1.50Speed LOW IDLE 1 Setting point w/out bumper spring rpm : 300 Speed Rack travel in mm: 6.5 Testing: Speed rpm : 200 Minimum rack trave: 7.80 : 300 rpm Rack travel in mm : 6.20...6.80 Rack travel in mm: 2.00 rpm : 380...420 Speed TORQUE CONTROL Dimension a mm : 0.50 : 950 2nd speed rpm Rack travel in m: 14.00...14.20 3rd speed rpm : 800 Rack travel in m: 14.60...14.80 Aneroid/Altitude Compensator Test 1st version Setting rpm : 600 Speed hPa : 1000 Pressure : 14.20..14.40 Rack travel mm Measurement 1/min: 600 Speed 1st pressure hPa : 250 Rack travel in m: 9.30...9.50 2nd pressure hPa : 650 Rack travel in m: 13.00...13.20 3rd pressure hPa : 1200 Rack travel in m: 14.30...14.50 * 4th pressure hPa : -Rack travel in m: 9.20...9.50 FUEL DELIVERY CHARACTERISTICS 1st version Aneroid pressure h: 1500 Speed rpm : 950 Del.quantity cm3/ : 216.0...219.0 1000 s: (213.0...222.0)

Spread cm3 : 8.00 1000 s: (12.0) Aneroid pressure h: 1500 rpm : 800 Speed Del.quantity cm3/: 234.0...238.0 1000 s: (231.0...241.0) cm3 : 8.00 Spread 1000 s: (12.0) Aneroid pressure h: -Speed rpm : 500 Del.quantity cm3/ : 122.0...124.0 1000 s: (119.0...127.0) cm3 : 8.00 Spread 1000 s: (12.0)

BREAKAWAY

1st version 1mm rack travel less than

full load rack tr: 13.00 Speed rpm : 990...1005

STARTING FUEL DELIVERY

Speed rpm : 100
Del.quantity cm3/ : 34.0...40.0
1000 s: (30.0...44.0)
Rack travel in mm : 9.20...9.50

Remarks:

* Increase in control-rod travel with respect to setting at least 0.1 mm

:

Note remarks

: MB 12,8 o 2 Test sheet : 21.08.91 Edition : 26.4.91 Replaces : ISO-4113 Test oil

Combination no. : 0 402 648 895

Injection pump

Pump designation : PE8P120A320LS7835 : 0 412 628 847 EP type number

Governor

Governor design. : RQ300/1050PA972-1

: 0 421 801 545 Governer no.

Customer-spec. information

: MERCEDES-BENZ Customer

: 0M402 A Engine

: 230.0 : 2100 1st version kW Rated speed

TEST BENCH REQUIREMENTS

Test oil

inlet temp. °C : 38...42

Overflow valve

: 1 417 413 025

Inlet press., bar: 1.50

Overflow

quantity min. 1/h: 100...120

Test nozzle holder

: 1 688 901 105 assembly

Opening

pressure, bar : 207...210

Orifice plate

diameter mm : 0,8

: 1 680 750 075 Test Lines

Outside diameter

x Wall thickness

: 8.00x2.50x1000 x Length mm

(A) Injection pump setting values Insp. values in parentheses Set equal delivery quant.

per values ____

BEGINNING OF DELIVERY

Test pressure, bar: 25...27

: 5.50...5.60 Prestroke mm

: (5.45...5.65) Rack travel in mm : 20.00...21.00

: 8-7-2-6-3-5-Firing order

: 0-45-90-135-180-225-Phasing

270-315

Tolerance + - ° : 0.50 (0.75)

Time to cyl. no. : 8

BASIC SETTING

1st speed rpm: 600

Rack travel in mm : 14.20...14.40

Del.guantity cm3/: 22.5...22.7

100 s: (22.2...23.0)

cm3 : 0.6Spread

100 s: (0.9)

rpm : 300.02nd speed

Rack travel in mm : 6.2...6.8 Del.quantity cm3/ : 1.6...2.2 100 s: (1.3...2.5)

Spread cm3 : 0.6

100 s: (1.0)

GUIDE SLEEVE POSITION Control-lever position

Degree: -2

rpm : 600

Rack travel in mm : 19.20...20.80

FULL LOAD DELIV. AT FULL LOAD STOP

1st version

Speed rpm : 600 Aneroid pressure h: 1000

: 225.0...227.0 Del.quantity 1000 : (222.0...230.0)

: 6.00 cm3 Spread

1000 : (9.00)

RATED SPEED

1st version

Setting point:

: 600 Speed rpm

Rack travel in mm: 20.0 Testina: 1st rack travel in: 12.80 rpm : 1090...1105 Speed 2nd rack travel in: 4.00 rpm : 1170...1200 Speed 4th rack travel in: 1350 Speed rpm : 0.00...1.50 LOW IDLE 1 Setting point w/out bumper spring Speed rpm : 300 Rack travel in mm : 6.5 Testing: Speed rpm : 200 Minimum rack trave: 7.80 rpm : 300 Rack travel in mm : 6.20...6.80 Rack travel in mm : 2.00 rom : 380...420 Speed TORQUE CONTROL Dimension a mm : 0.50 2nd speed rpm : 950 Rack travel in m: 13.80...14.00 3rd speed rpm : 800 Rack travel in m: 14.50...14.70 Aneroid/Altitude Compensator Test 1st version Setting : 600 Speed rpm hPa : 1000 Pressure : 14.20...14.40 Rack travel mm Measurement 1/min: 600 Speed 1st pressure hPa : 250 Rack travel in m: 9.40...9.60 2nd pressure hPa : 650 Rack travel in m: 13.00...13.20 3rd pressure hPa : 1200 Rack travel in m: 14.30...14.40 * 4th pressure hPa : -Rack travel in m: 9.10...9.40 FUEL DELIVERY CHARACTERISTICS 1st version Aneroid pressure h: 1500 rpm : 1050 Del.quantity cm3/: 214.0...217.0 1000 s: (211.0...220.0)

Spread cm3 : 8.00 1000 s: (12.0) Aneroid pressure h: 1500 Speed rpm : 800 Del.quantity cm3/: 232.0...236.0 1000 s: (229.0...239.0) Spread cm3 : 8.00 1000 s: (12.0) Aneroid pressure h: -Speed rpm : 500 Del.quantity cm3/: 122.0...124.0 1000 s: (119.0...127.0) Spread cm3 : 8.00 1000 s: (12.0)

BREAKAWAY

1st version 1mm rack travel less than

full load rack tr: 12.80 Speed rpm : 1090...1105

STARTING FUEL DELIVERY

Speed rpm : 100
Del.quantity cm3/ : 30.0...40.0
1000 s: (26.0...44.0)
Rack travel in mm : 9.10...9.40

Remarks:

* Increase in control-rod travel with respect to setting at least 0.1 mm

Note remarks

Test sheet : MB 14,7 v 2 : 21.06.91 Edition : 27.5.91 Replaces : ISO-4113 Test oil

: 0 402 648 899 Combination no.

Injection pump

Pump designation : PE8P120A320LS7839 EP type number : 0 412 628 849

Governor

Governor design. : RQ300/950PA971-5 : 0 421 801 559 Governer no.

Customer-spec. information

: MERCEDES-BENZ Customer

: 0M442 LA Engine

: 370.0 1st version kW : 1900 Rated speed

TEST BENCH REQUIREMENTS

Test oil

inlet temp. °C : 38...42

Overflow valve

: 1 417 413 025

Inlet press., bar: 1.50

Overflow

quantity min. 1/h: 100...120

Test nozzle holder

: 1 688 901 105 assembly

Opening

: 207...210 pressure, bar

Orifice plate

: 0,8 diameter mm

: 1 680 750 075 Test lines

Outside diameter

x Wall thickness

: 8.00x2.50x1000 x Length mm

(A) Injection pump setting values Insp. values in parentheses Set equal delivery quant.

per values _

BEGINNING OF DELIVERY

Test pressure, bar: 25...27

: 5.00...5.10 Prestroke mm : (4.95...5.15)

Rack travel in mm : 20.00...21.00

: 8-7-2-6-3-5-Firing order

: 0-45-90-135-180-225-Phasing

270-315

Tolerance + - ° : 0.50 (0.75)

Time to cyl. no. : 8

BASIC SETTING

1st speed rpm: 600

Rack travel in mm : 15.00...15.10

Del.quantity cm3/: 25.6...25.8

100 s: (25.3...26.1)

Spread cm3 : 0.6

100 s: (0.9)

rpm : 300.02nd speed

Rack travel in mm: 6.0...6.6 Del.quantity cm3/: 1.6...2.2

100 s: (1.3...2.5)

cm3 : 0.6Spread 100 s: (1.0)

GUIDE SLEEVE POSITION Control-Lever position

Degree: -2 rpm : 600

Rack travel in mm : 19.20...20.80

FULL LOAD DELIV. AT FULL LOAD STOP

1st version

rpm : 600 Speed Aneroid pressure h: 1050

Del.quantity : 256.0...258.0 1000 : (253.0...261.0)

cm3 : 6.00

Spread 1000 : (9.00)

RATED SPEED

1st version

Setting point:

Speed : 600 rom

Rack travel in mm: 20.0 Testing: 1st rack travel in: 15.30 rpm : 990...1005 Speed 2nd rack travel in: 4.00 rpm : 1075...1105 Speed 4th rack travel in: 1150 rom : 0.00...1.50Speed LOW IDLE 1 Setting point w/out bumper spring rpm Rack travel in mm : 6.3 Testing: Speed rpm : 200 Minimum rack trave: 7.60 Speed rpm: 300 Rack travel in mm: 6.00...6.60 Rack travel in mm: 2.00 : 370...410 Speed rpm TORQUE CONTROL Dimension a mm rpm : 950 2nd speed Rack travel in m: 16.30...16.50 3rd speed rpm : 800 Rack travel in m: 16.30...16.50 Aneroid/Altitude Compensator Test 1st version Setting : 600 Speed rpm hPa : 1050 Pressure : 15.10...15.30 Rack travel mm Measurement 1/min: 600 Speed 1st pressure hPa : 350 Rack travel in m: 10.20...10.40 2nd pressure hPa : 800 Rack travel in m: 13.90...14.10 3rd pressure hPa : 1300 Rack travel in m: 15.30...15.50 4th pressure hPa : 1600 Rack travel in m: 15.90...16.10 5th pressure hPa : -Rack travel in m: 9.30...9.60 FUEL DELIVERY CHARACTERISTICS 1st version Aneroid pressure h: 1900 rpm : 950 Speed

Del.quantity cm3/: 279.0...282.0 1000 s: (276.0...285.0) cm3 : 8.00 Spread 1000 s: (12.0) Aneroid pressure h: 1900 Speed rpm : 800 Del.quantity cm3/ : 283.0...287.0 1000 s: (280.0...290.0) : 8.00 Spread cm3 1000 s: (12.0) Aneroid pressure h: -: 500 Speed rpm Del.quantity cm3/: 136.0...138.0 1000 s: (133.0...141.0) cm3 : 8.00Spread 1000 s: (12.0)

BREAKAWAY

1st version 1mm rack travel less than

full load rack tr: 15.30 Speed rpm : 990...1005

Remarks:

:

Note remarks

: MB 14,7 u : 26.07.91 Test sheet Edition : 3.5.91 Replaces : ISO-4113 Test oil

Combination no. : 0 402 648 900

Injection pump

Pump designation : PE8P120A320LS7840 EP type number : 0 412 628 850

Governor

Governor design.: RQ300/1050PA972-4 : 0 421 801 560 Governer no.

Customer-spec. information

: MERCEDES-BENZ Customer

Engine : 0M442 A

1st version kW : 250.0 : 2100 Rated speed

TEST BENCH REQUIREMENTS

Test oil

inlet temp. °C : 38...42

Overflow valve

: 1 417 413 025

Inlet press., bar: 1.50

Overflow

quantity min. 1/h: 100...120

Test nozzle holder

: 1 688 901 105 assembly

Opening

pressure, bar : 207...210

Orifice plate

: 0,8 diameter mm

; 1 680 750 075 Test lines

Outside diameter

x Wall thickness

: 8.00X2.50X1000 x Length mm

(A) Injection pump setting values Insp. values in parentheses Set equal delivery quant. per values ____

BEGINNING OF DELIVERY

Test pressure, bar: 25...27

: 5.20...5.30 Prestroke mm

: (5.15...5.35) Rack travel in mm : 20.00...21.00

: 8-7-2-6-3-5-Firing order

: 0-45-90-135-180-225-Phasing

270-315

Tolerance + - ° : 0.50 (0.75)

Time to cyl. no. : 8

BASIC SETTING

1st speed rpm: 600

Rack travel in mm : 13.30...13.50

Del.guantity cm3/: 20.6...20.8

100 s: (20.3...21.1)

cm3 : 0.6Spread

100 s: (0.9)

rpm : 300.0 2nd speed Rack travel in mm: 6.0...6.6 Del.quantity cm3/: 1.6...2.2

100 s: (1.3...2.5)

cm3 : 0.6 Spread

100 s: (1.0)

GUIDE SLEEVE POSITION Control-lever position

Degree: -2

rpm : 600 Speed

Rack travel in mm : 19.20...20.80

FULL LOAD DELIV. AT FULL LOAD STOP

1st version

rpm : 600 Speed

Aneroid pressure h: 900 Del.quantity : 206.0...208.0 1000 : (203.0...211.0)

: 6.00 Spread cm3

1000 : (9.00)

RATED SPEED

1st version

Setting point:

: 600 Speed rom

Rack travel in mm: 20.0 Testing: 1st rack travel in: 11.90 rpm : 1090...1105 Speed 2nd rack travel in: 4.00 rpm : 1160...1190 Speed 4th rack travel in: 1250 Speed rpm : 0.00...1.50LOW IDLE 1 Setting point w/out bumper spring rpm : 300 Rack travel in mm: 6.5 Testing: rpm : 200 Speed Minimum rack trave: 7.90 Speed rpm : 300
Rack travel in mm : 6.20...6.80
Rack travel in mm : 2.00 : 380...420 Speed **LOW** TORQUE CONTROL Dimension a mm : 0.60 2nd speed rpm : 1050 Rack travel in m: 12.90...13.10 3rd speed rpm : 800 Rack travel in m: 14.20...14.40 Aneroid/Altitude Compensator Test 1st version Settina : 600 Speed rom hPa : 900 Pressure Rack travel mm : 13.30...13.50 Measurement 1/min: 600 Speed 1st pressure hPa : 300 Rack travel in m: 11.10...11.30 2nd pressure hPa : 650 Rack travel in m: 12.60...12.80 3rd pressure hPa : 1050 Rack travel in m: 13.40...13.50 * 4th pressure hPa : 1250 Rack travel in m: 14.00...14.20 5th gressure hPa : -Rack travel in m: 10.60...10.80 FUEL DELIVERY CHARACTERISTICS

Del.quantity cm3/: 194.0...197.0

1000 s: (191.0...200.0)

Spread cm3 : 8.00

1000 s: (12.0)

Aneroid pressure h: 1500

Speed rpm : 800

Del.quantity cm3/: 220.0...224.0

1000 s: (217.0...227.0)

Spread cm3 : 8.00

1000 s: (12.0)

Aneroid pressure h:
Speed rpm : 500

Del.quantity cm3/: 123.0...125.0

1000 s: (120.0...128.0)

Spread cm3 : 8.00

1000 s: (12.0)

BREAKAWAY

1st version 1mm rack travel less than

full load rack tr: 11.90 Speed rpm : 1090...1105

Remarks:

* Increase in control-rod travel with respect to setting at least 0.1 mm

MO8

Speed

1st version

Aneroid pressure h: 1500

rpm : 1050

Note remarks

Test sheet : MB 14,7 v Edition : 21.08.91 Replaces : 27.5.91 Test oil : ISO-4113

Combination no. : 0 402 648 902

Injection pump

Pump designation : PE8P120A320LS7839 EP type number : 0 412 628 849

Governor

Governor design. : RQ300/1050PA972-5 Governer no. : 0 421 801 564

Customer-spec. information

Customer : MERCEDES-BENZ

Engine : 0M442 LA

1st version kW : 370.0 Rated speed : 2100

TEST BENCH REQUIREMENTS

Test oil

inlet temp. °C : 38...42

Overflow valve *

: 1 417 413 025

Inlet press., bar: 1.50

Overflow

quantity min. 1/h: 100...120

Test nozzle holder

assembly : 1 688 901 105

Opening

pressure, bar : 207...210

Orifice plate

diameter mm : 0,8

Test lines : 1 680 750 075

Outside diameter

x Wall thickness

x Length mm : 8.00X2.50X1000

(A) Injection pump setting values Insp. values in parentheses Set equal delivery quant.

per values ____

BEGINNING OF DELIVERY

Test pressure, bar: 25...27

Prestroke mm : 5.00...5.10

: (4.95...5.15)

Rack travel in mm : 20.00...21.00 Firing order : 8-7-2-6-3-5-

4-1

Phasing : 0-45-90-135-180-225-

270-315

Tolerance $+ - \circ : 0.50 (0.75)$

Time to cyl. no. : 8

BASIC SETTING

1st speed rpm: 600

Rack travel in mm : 15.10...15.30

Del.quantity cm3/: 25.6...25.8

100 s: (25.3...26.1)

Spread cm3: 0.6

100 s: (0.9)

2nd speed rpm : 300.0

Rack travel in mm: 6.2...6.8

Del.quantity cm3/: 1.6...2.2 100 s: (1.3...2.5)

Spread cm3 : 0.6

100 s: (1.0)

GUIDE SLEEVE POSITION

Control-lever position
Degree: -2

Speed rpm: 600

Rack travel in mm : 19.20...20.80

FULL LOAD DELIV. AT FULL LOAD STOP

1st version

Speed rpm: 600 Aneroid pressure h: 1050

Del.guantity : 256.0...258.0

1000 : (253.0...261.0)

Spread cm3 : 6.00 1000 : (9.00)

RATED SPEED

1st version

Setting point:

Speed rpm : 600

Rack travel in mm: 20.0 Testina: 1st rack travel in: 15.20 rpm : 1090...1105 Speed 2nd rack travel in: 4.00 rpm : 1160...1190 Speed 4th rack travel in: 1250 rpm : 0.00...1.50Speed LOW IDLE 1 Setting point w/out bumper spring rpm : 300 Speed Rack travel in mm: 6.5 Testing: rpm : 200 Speed Minimum rack trave: 7.80 Speed rpm : 300 Rack travel in mm : 6.20...6.80 Rack travel in mm : 2.00 Speed rpm : 380...420 TORQUE CONTROL Dimension a mm : ?
2nd speed rpm : 1050
Rack travel in m: 16.20...16.40 3rd speed rpm : 800 Rack travel in m: 16.30...16.50 Aneroid/Altitude Compensator Test 1st version Setting : 600 Speed rpm hPa : 1050 Pressure : 14.60...14.80 Rack travel mm Measurement 1/min: 600 Speed 1st pressure hPa : 350 Rack travel in m: 9.70...9.90 2nd pressure hPa : 800 Rack travel in m: 13.40...13.60 3rd pressure hPa : 1300 Rack travel in m: 14.80...15.00 4th pressure hPa : 1600 Rack travel in m: 15.10...15.30 5th pressure hPa : -Rack travel in m: 9.30...9.60 FUEL DELIVERY CHARACTERISTICS 1st version Aneroid pressure h: 1900 rpm : 1050 Speed

Del.quantity cm3/: 271.0...274.0 1000 s: (268.0...277.0) cm3 : 8.00 Spread 1000 s: (12.0) Aneroid pressure h: 1900 Speed rpm : 800 Del.quantity cm3/: 276.0...280.0 1000 s: (273.0...283.0) cm3 : 8.00 Spread 1000 s: (12.0) Aneroid pressure h: -: 500 Speed rpm Del.quantity cm3/: 136.0...138.0 1000 s: (133.0...141.0) cm3 : 8.00 Spread 1000 s: (12.0)

BREAKAWAY

1st version 1mm rack travel less than

full load rack tr: 15.20 Speed rpm : 1090...1105

speed rpm : 1090...1103

Remarks:

•

Note remarks

: MB 14,7 a34 : 21.06.91 Test sheet Edition

Replaces

: ISO-4113 Test oil

Combination no. : 0 402 648 903

Injection pump

Pump designation : PE8P120A320LS7801-1

: 0 412 628 818 EP type number

Governor

: RQV350...1050PA866 Governor design.

-12

: 0 421 813 947 Governer no.

Customer—spec. information

Customer : MERCEDES-BENZ

: 0M442 A Engine

: 260.0 1st version kW Rated speed : 2100

TEST BENCH REQUIREMENTS

Test oil

inlet temp. °C : 38...42

Overflow valve

: 1 417 413 025

Inlet press., bar: 1.50

Overflow

quantity min. 1/h: 100...120

Test nozzle holder

assembly : 1 688 901 019

Opening

: 207...210 pressure, bar

Orifice plate

: 0,8 diameter mm

Test Lines : 1 680 750 067

Outside diameter x Wall thickness

: 6.00X1.50X1000 x Length mm

(A) Injection pump setting values Insp. values in parentheses Set equal delivery quant.

per values ____

BEGINNING OF DELIVERY

Test pressure, bar: 25...27

: 5.20...5.30 Prestroke mm

: (5.15...5.35)
Rack travel in mm : 20.00...21.00
Firing order : 8-7-2-6-3-5-

: 0-45-90-135-180-225-Phasing

270-315

: 0.50 (0.75) Tolerance + - °

Time to cyl. no. : 8

BASIC SETTING

1st speed rpm : 500

Rack travel in mm : 13.90...14.10

Del.quantity cm3/: 20.1...20.3

100 s: (19.8...20.6)

cm3 : 0.5Spread

100 s: (0.9)

rpm : 350.0 2nd speed

Rack travel in mm : 5.0...5.5 Del.quantity cm3/: 1.6...2.2

100 s: (1.3...2.5)

Spread cm3 : 0.6100 s: (1.0)

(B) Setting of injection pump

with governor

GUIDE SLEEVE TRAVEL

1st speed rpm : 350 1.30...1.80 travel mm

2nd speed 570 rpm

3.30...3.80 travel mm

: 900 3rd speed rpm

: 5.40...5.90 travel mm

: 1107 4th speed rpm

travel mm : 7.80...8.30

: 1204 5th speed rpm

: 9.80...10.30 travel mm

GUIDE SLEEVE POSITION

Control-lever position

Degree: -1 rpm : 1130

Rack travel in mm : 16.50...18.00

FULL LOAD DELIV. AT FULL LOAD STOP 1st version rpm : 500 Speed Aneroid pressure h: 650 Del.quantity : 201.0...203.0 1000 : (198.0...206.0) cm3 : 5.00 Spread 1000 : (9.00) RATED SPEED 1st version Control lever position degrees: 117...125 Testina: 1st rack travel in: 11.50 rpm : 1090...1100 Speed 2nd rack travel in: 4.00 Speed rpm : 1160...1190 4th rack travel in: 1300 Speed rpm : 0.00...1.00 LOW IDLE 1 Control lever position degrees: 65...73 Testing: Speed rpm : 250 Minimum rack trave: 7.60 rpm : 350 Rack travel in mm : 5.00...5.50 CONSTANT REGULATION rpm : 350...550 Speed TORQUE CONTROL Dimension a mm : 1.60
2nd speed rpm : 1050
Rack travel in m: 12.50...12.70
3rd speed rpm : 700
Rack travel in m: 14.10...14.30 Aneroid/Altitude Compensator Test 1st version Setting : 600 Speed hPa : 650 Pressure : 13.90...14.10 Rack travel mm Measurement 1/min: 600 Speed 1st pressure hPa : 300 Rack travel in m: 12.20...12.40 2nd pressure hPa : 375

Rack travel in m: 13.30...13.50
3rd pressure hPa : 900
Rack travel in m: 14.00...14.10 *
4th pressure hPa : -Rack travel in m: 10.90...11.20 START CUT-OUT 1/min: 270 (290) Speed FUEL DELIVERY CHARACTERISTICS 1st version Aneroid pressure h: 1100 : 1050 Speed rpm Del.quantity cm3/: 180.0...183.0 1000 s: (177.0...186.0) cm3 : 8.00 Spread 1000 s: (12.0) Aneroid pressure h: 1100 Speed rpm : 700
Del.quantity cm3/: 213.0...217.0
1000 s: (210.0...220.0) Aneroid pressure h: -Speed rpm : 500
Del.quantity cm3/: 147.0...149.0
1000 s: (144.0...152.0) cm3 : 8.00 Spread 1000 s: (12.0) **BREAKAWAY** 1st version 1mm rack travel less than full load rack tr: 11.50 rpm : 1090...1100 Speed STARTING FUEL DELIVERY Speed rpm : 100 Del.quantity cm3/ : 180.0...200.0 1000 s: (176.0...204.0) Remarks: * Increase in control-rod travel with respect to setting at least 0.1 mm

Note remarks

: MB 14,7 u 2 : 30.08.91 : 3.5.91 Test sheet Edition Replaces : ISO-4113 Test oil

: 0 402 648 909 Combination no.

Injection pump

Pump designation : PE8P120A320LS7840 : 0 412 628 850 EP type number

Governor

Governor design. : RQ300/950PA971-6 : 0 421 801 575 Governer no.

Customer-spec. information

: MERCEDES-BENZ Customer

: 0M442 A Engine

: 250.0 1st version kW : 1900 Rated speed

TEST BENCH REQUIREMENTS

Test oil

inlet temp. °C : 38...42

Overflow valve

: 1 417 413 025

Inlet press., bar: 1.50

Overflow

quantity min. 1/h: 100...120

Test nozzle holder

: 1 688 901 105 assembly

Openina

: 207...210 pressure, bar

Orifice plate

: 0,8 diameter mm

Test lines : 1 680 750 075

Outside diameter

x Wall thickness

: 8.00x2.50x1000 x Length mm

(A) Injection pump setting values Insp. values in parentheses Set equal delivery quant.

per values _

BEGINNING OF DELIVERY

Test pressure, bar: 25...27

Prestroke mm : 5.20...5.30

: (5.15...5.35) Rack travel in mm : 20.00...21.00 : 8-7-2-6-3-5-Firing order

: 0-45-90-135-180-225-Phasing

270-315

Tolerance + - ° : 0.50 (0.75)

Time to cyl. no. : 8

BASIC SETTING

rpm: 600 1st speed

Rack travel in mm : 13.50...13.70

Del.quantity cm3/: 20.6...20.8

100 s: (20.3...21.1)

Spread cm3 : 0.6

100 s: (0.9)

2nd speed rpm : 300.0 Rack travel in mm : 7.0...7.4

Del.quantity cm3/: 1.6...2.2

100 s: (1.3...2.5) cm3 : 0.6 Spread

100 s: (1.0)

GUIDE SLEEVE POSITION Control-lever position

Degree: -2

rpm : 600 Speed

Rack travel in mm : 19.20...20.80

FULL LOAD DELIV. AT FULL LOAD STOP

1st version

Speed rpm : 600 Aneroid pressure h: 900

: 205.0...208.0 Del.quantity 1000 : (203.0...211.0)

Emo : 6.00 Spread 1000 : (9.00)

RATED SPEED

1st version

Setting point:

Speed : 600 rpm

Rack travel in mm : 20.0 Testing: 1st rack travel in: 12.30 rpm : 990...1005 Speed 2nd rack travel in: 4.00 Speed rpm: 1070...1100 4th rack travel in: 1150 Speed rpm : 0.00...1.50 LOW IDLE 1 Setting point w/out bumper spring : 300 rpm Rack travel in mm: 6.5 Testing: Speed rpm : 200 Minimum rack trave: 7.60 rpm : 300 Speed Rack travel in mm : 6.20...6.80 Rack travel in mm : 2.00 : 380...420 Speed rem . TORQUE CONTROL Dimension a mm 2nd speed rpm : 950 Rack travel in m: 13.30...13.50 3rd speed rpm : 800 Rack travel in m: 13.90...14.10 Aneroid/Altitude Compensator Test 1st version Setting : 600 Speed rpm hPa : 900 Pressure : 13.50...13.70 Rack travel mm Measurement Speed $1/\min: 600$ 1st pressure hPa : 300 Rack travel in m: 10.80...11.00 2nd pressure hPa : 650 Rack travel in m: 12.80...13.00

3rd pressure hPa : 1050
Rack travel in m: 13.60...13.80 *
4th pressure hPa : 1250
Rack travel in m: 13.90...14.10 5th pressure hPa : -Rack travel in m: 10.70...10.90 FUEL DELIVERY CHARACTERISTICS 1st version Aneroid pressure h: 1500 rpm : 950 Speed

Del.quantity cm3/: 204.0...207.0 1000 s: (201.0...210.0) Spread cm3 : 8.00 1000 s: (12.0) Aneroid pressure h: 1500 : 800 Speed rpm Del.quantity cm3/: 220.0...224.0 1000 s: (217.0...227.0) cm3 : 8.00 Spread 1000 s: (12.0) Aneroid pressure h: -Speed rpm : 500 Del.quantity cm3/ : 123.0...125.0 1000 s: (120.0...128.0) cm3 : 8.00 Spread 1000 s: (12.0)

BREAKAWAY

1st version 1mm rack travel less than

full load rack tr: 12.30 Speed rpm : 990...1005

Remarks:

* Increase in control-rod travel with respect to setting at least 0.1 mm

Note remarks

: MB 14,7 v 3 Test sheet Edition : 05.07.91 Replaces : 3.6.91 Test oil : ISO-4113

: 0 402 648 911 Combination no.

Injection pump

Pump designation : PE8P120A320LS7839 : 0 412 628 849 EP type number

Governor

Governor design. : RQV300...1050PA797

-27

: 0 421 813 916 Governer no.

Customer-spec. information

: MERCEDES-BENZ Customer

Engine : 0M442 LA

: 370.0 1st version kW Rated speed : 2100

TEST BENCH REQUIREMENTS

Test oil

inlet temp. °C : 38...42

Overflow valve

: 1 417 413 025

Inlet press., bar: 1.50

Overflow

quantity min. 1/h: 100...120

Test nozzle holder

: 1 688 901 105 assembly

Opening

: 207...210 pressure, bar

Orifice plate

diameter mm : 0,8

Test Lines : 1 680 750 075

Outside diameter

x Wall thickness

x Length mm : 8.00X2.50X1000

(A) Injection pump setting values Insp. values in parentheses Set equal delivery quant.

per values ____

BEGINNING OF DELIVERY

Test pressure, bar: 25...27

: 5.00...5.10 : (4.95...5.15) Prestroke mm

Rack travel in mm : 20.00...21.00

: 8- 7- 2- 6- 3- 5-Firing order

: 0-45-90-135-180-225-Phasing

270-315

Tolerance + - ° : 0.50 (0.75)

Time to cyl. no. : 8

BASIC SETTING

1st speed rpm: 600

Rack travel in mm : 14.60...14.80

Del.quantity cm3/: 25.6...25.8

100 s: (25.3...26.1)

cm3 : 0.6 Spread

100 s: (0.9)

2nd speed rpm : 300.0 Rack travel in mm : 5.2...5.8 Del.quantity cm3/ : 1.6...2.2 100 s: (1.3...2.5)

Spread cm3 : 0.6100 s: (1.0)

(B) Setting of injection pump

with governor

GUIDE SLEEVE TRAVEL

rpm : 3001st speed

: 1.00...1.50 travel mm

: 558 2nd speed rpm

: 4.30...4.80 travel mm

3rd speed : 820 rpm

5.90...6.40 travel mm

: 1108 4th speed rpm

: 8.30...8.80 : 1183 travel mm

5th speed rom

: 8.30...8.80 travel mm

GUIDE SLEEVE POSITION Control-lever position

Degree: -1

rpm : 1130

Rack travel in mm : 15.20...17.80

Rack travel in m: 13.40...13.60 3rd pressure hPa : 1300 Rack travel in m: 14.80...15.00 4th pressure hPa : 1600 Rack travel in m: 15.40...15.60 FULL LOAD DELIV. AT FULL LOAD STOP 1st version rpm : 600 Speed Aneroid pressure h: 1050 Del.quantity : 256.0...258.0 1000 : (253.0...261.0) 5th pressure hPa : -Rack travel in m: 8.90...9.20 cm3 : 6.00 1000 : (9.00) Spread START CUT-OUT 1/min: 220 (240) RATED SPEED Speed 1st version FUEL DELIVERY CHARACTERISTICS Control lever position degrees: 118...126 1st version Aneroid pressure h: 1900 Testing: Speed rpm : 1050 Del.quantity cm3/: 271.0...274.0 1000 s: (268.0...277.0) 1st rack travel in: 14.10 rpm : 1090...1100 Speed 2nd rack travel in: 4.00 cm3 : 8.00 rpm : 1175...1205 Spread Speed 4th rack travel in: 1250 1000 s: (12.) Aneroid pressure h: 1900 rpm : 0.00...1.00Speed Speed rpm : 800 Del.quantity cm3/: 276.0...280.0 1000 s: (273.0...283.0) LOW IDLE 1 Control lever cm3 : 8.00 position degrees: 76...84 Spread 1000 s: (12.0) Aneroid pressure h: -Testing: : 200 Speed rpm : 500 Speed rpm Del.quantity cm3/: 136.0...138.0 Minimum rack trave: 6.80 1000 s: (133.0...141.0) rpm : 300 Rack travel in mm : 5.20...5.80 : 8.00 Spread cm3 1000 s: (12.0) CONSTANT REGULATION Speed rom : 300...450 **BREAKAWAY** TORQUE CONTROL Dimension a mm : 0.80 1st version 2nd speed rpm : 1050 1mm rack travel less than Rack travel in m: 15.10...15.30 full load rack tr: 14.10 3rd speed rpm : 800 Rack travel in m: 15.90...16.10 rpm : 1090...1100 Speed STARTING FUEL DELIVERY Aneroid/Altitude Compensator Test rpm : 100 Speed Del.quantity cm3/: 275.0...295.0 1st version Setting 1000 s: (271.0...299.0) : 600 Speed rpm hPa : 1050 Remarks: Pressure : 14.60...14.80 Rack travel mm Measurement 1/min: 600 Speed 1st pressure hPa : 350 Rack travel in m: 9.70...9.90 2nd pressure hPa : 800

Note remarks

Test sheet : FIA 17,2 f : 26.07.91 Edition : 3.6.91 Replaces : ISO-4113 Test oil

: 0 402 648 912 Combination no.

Injection pump

Pump designation : PE8P130A920/5LS7841

: 0 412 638 803 EP type number

Governor

Governor design. : RQV300...950PA994K

Governer no. : 0 421 815 275

Customer-spec, information Customer : IVECO-FIAT

: 8280.42.050 Engine

TEST BENCH REQUIREMENTS

Test cil

inlet temp. °C : 40...45

Overflow valve

: 1 417 413 025

Inlet press., bar: 1.50

Test nozzle holder

: 1 688 901 105 assembly

Opening

pressure, bar : 207...210

Orifice plate

: 0,8 diameter mm

Test Lines : 1 680 750 015

Outside diameter x Wall thickness

: 6.00X1.50X600 x Length mm

(A) Injection pump setting values Insp. values in parentheses Set equal delivery quant. per values ____

BEGINNING OF DELIVERY

Test pressure, bar: 25...27

: 5.00...5.10 Prestroke mm

: (4.95...5.15)

Rack travel in mm : 9.00...12.00

: 1- 8- 4- 3- 6- 5-7- 2 Firing order

: 0-45-90-135-180-225-270-315 Phasina

Tolerance + - ° : 0.50 (0.75)

Time to cyl. no.

BASIC SETTING

1st speed rpm: 550

Rack travel in mm : 13.10...13.20

Del.quantity cm3/: 22.6...22.9

100 s: (22.2...23.2)

Spread cm3 : 0.6

100 s: (1.0)

rpm : 300.02nd speed Rack travel in mm : 5.8...6.2 Del.quantity cm3/ : 2.0...2.6 100 s: (1.6...3.0) cm3 : 1.0 Spread

100 s: (1.4)

(B) Setting of injection pump with dovernor

GUIDE SLEEVE TRAVEL

rpm : 995 1st speed

: 10.20...10.40 travel mm

rpm : 300 2nd speed

: 2.00...2.30 travel mm rpm : 700 3rd speed

travel mm

: 5.80...6.20

rpm : 1200 4th speed

: 13.00...14.00 travel mm

GUIDE SLEEVE POSITION Control-lever position

Degree: -1 rpm : 1000

Rack travel in mm : 15.20...17.80

FULL LOAD DELIV. AT FULL LOAD STOP

1st version

Speed rpm : 550

Aneroid pressure h: 900 Del.quantity

: 226.0...229.0 1000 : (222.5...232.5)

: 6.00 cm3 Spread

1000 : (10.00)

RATED SPEED

1st version Control lever

position degrees: 111...119

Testina:

1st rack travel in: 12.70 rpm : 990...1000 2nd rack travel in: 4.00

rpm : 1075...1105 Speed

3rd rack travel in: 4.00 4th rack travel in: 1200

rpm : 0.00...1.00Speed

LOW IDLE 1 Control lever

position degrees: 61...69

Testing:

Speed : 200 rpm Minimum rack trave: 7.50 rpm : 300

Rack travel in mm : 5.90...6.10

CONSTANT REGULATION

rpm : 310...440 Speed

TORQUE CONTROL

Dimension a mm :?

Torque control curve - 1st version

Torque control curve - 1st version

1st speed rpm : 550
Rack travel in m: 13.10...13.20

2nd speed rpm : 800
Rack travel in m: 13.70...13.90

3rd speed rpm : 700
Rack travel in m: 13.40...13.60

4th speed rpm : 950

Rack travel in m: 13.70...13.90

Aneroid/Altitude Compensator Test

1st version

Setting

Speed : 950 rpm Pressure hPa : 900

Rack travel mm : 13.70...13.80

Measurement

1/min: 950 Speed

1st pressure hPa : -

Rack travel in m: 10.40...10.60

2nd pressure hPa : 380 Rack travel in m: 12.90...13.00

3rd pressure hPa : 260

Rack travel in m: 11.10...11.50

START CUT-OUT

1/min : 220 (240) Speed

FUEL DELIVERY CHARACTERISTICS

1st version

Aneroid pressure h: 900 : 950 Speed rpm

Del.quantity cm3/: 221.0...228.0

1000 s: (217.5...231.5)

Aneroid pressure h: -

Speed rpm : 500 Del.quantity cm3/ : 144.0...147.0

1000 s: (140.5...150.5)

BREAKAWAY

1st version

1mm rack travel less than

full load rack tr: 12.70

rpm : 990...1000 Speed

STARTING FUEL DELIVERY

rpm : 100 Speed

Del.quantity cm3/: 165.0...195.0 1000 s: (161.0...199.0)

Rack travel in mm : 11.90...12.50

LOW IDLE

Speed rpm : 300
Rack travel in mm : 5.80...6.20
Del.quantity cm3/ : 20.0...26.0
1000 s: (16.0...30.0)
Spread cm3 : 10.00
1000 s: (14.00)

Remarks:

Setting and blocking of pointer of start-of-delivery sensor on cyl. 1

start of delivery

Note remarks

: FIA 17,2 f1 Test sheet Edition : 26.07.91

Replaces

Test oil : ISO-4113

Combination no. : 0 402 648 913

Injection pump

Pump designation : PE8P130A920/5LS7841

: 0 412 638 803 EP type number

Governor

Governor design. : RQV300...950PA994-1K

: 0 421 815 276 Governer no.

Customer-spec. information : IVECO-FLAT Customer

: 8280.42.350 SPR Engine

TEST BENCH REQUIREMENTS

Test oil

: 40...45 inlet temp. °C

Overflow valve

: 1 417 413 025

Inlet press., bar: 1.50

Test nozzle holder

: 1 688 901 105 assembly

Openina

pressure, bar : 207...210

Orifice plate

diameter mm : 0,8

: 1 680 750 015 Test lines

Outside diameter

x Wall thickness

: 6.00x1.50x600 x Length mm

(A) Injection pump setting values Insp. values in parentheses Set equal delivery quant.

per values

BEGINNING OF DELIVERY

Test pressure, bar: 25...27

: 5.00...5.10 Prestroke mm : (4.95...5.15)

Rack travel in mm : 9.00...12.00

M19

: 1- 8- 4- 3- 6- 5-7- 2 Firing order

Phasina : 0-45-90-135-180-225-

270-315

Tolerance + - ° : 0.50 (0.75)

Time to cyl. no. : 1

BASIC SETTING

1st speed rpm: 550

Rack travel in mm : 13.70...13.80

Del.quantity cm3/: 24.5...24.8

100 s: (24.1...25.1)

cm3 : 0.6Spread

100 s: (1.0)

2nd speed rpm : 300.0 Rack travel in mm : 5.8...6.2 Del.quantity cm3/ : 3.0...3.6

100 s: (2.6...4.0)

cm3 : 1.0Spread 100 s: (1.4)

(B) Setting of injection pump

with governor

GUIDE SLEEVE TRAVEL

rpm : 995 1st speed

: 10.20...10.40 travel mm

rpm : 3002nd speed

travel mm : 2.00...2.30

rpm : 700 3rd speed

: 5.80...6.20 travel mm

: 1200 4th speed rpm

travei mm : 13.00...14.00

GUIDE SLEEVE POSITION Control-lever position

Degree: -1

Speed rpm : 1000 Rack travel in mm : 15.20...17.80

FULL LOAD DELIV. AT FULL LOAD STOP

1st version

rpm : 550 Speed

Aneroid pressure h: 900

Del.quantity : 243.0...251.5)

cm3 : 6.00 Spread

1000 : (10.00)

RATED SPEED

1st version

Control lever

position degrees: 111...119

Testina:

1st rack travel in: 13.70

Speed rpm : 990...1000

2nd rack travel in: 4.00

Speed rpm : 1075...1105

4th rack travel in: 1200

rom : 0.00...1.00Speed

LOW IDLE 1 Control lever

position degrees: 61...69

Testing:

Speed rpm

Minimum rack trave: 7.50 Speed rpm

Rack travel in mm : 5.90...6.10

CONSTANT REGULATION

rpm : 310...440 Speed

TORQUE CONTROL

Dimension a mm :?

Torque control curve - 1st version

1st speed rpm : 550

Rack travel in m: 13.70...13.80 ad speed rpm : 800

2nd speed

Rack travel in m: 14.60...14.80

: 650 3rd speed rpm

Rack travel in m: 14.30...14.50

4th speed rpm : 950

Rack travel in m: 14.70...14.90

Aneroid/Altitude

Compensator Test

1st version

Setting

: 950 Speed rpm

hPa : 900 Pressure

: 14.70...14.80 Rack travel mm

Measurement

1/min: 950 Speed

1st pressure hPa : -

Rack travel in m: 10.30...10.50

2nd pressure hPa : 450

Rack travel in m: 13.60...13.70

3rd pressure hPa : 280

Rack travel in m: 11.40...11.60

START CUT-OUT

1/min : 220 (240) Speed

FUEL DELIVERY CHARACTERISTICS

1st version

Aneroid pressure h: 900

: 950 Speed rom

Del.quantity cm3/: 248.0...255.0 1000 s: (244.5...258.5)

Aneroid pressure h: -

Speed rpm : 500 Del.quantity cm3/ : 140.0...143.0 1000 s: (136.5...146.5)

BREAKAWAY

1st version

1mm rack travel less than

full load rack tr: 13.70

rpm : 990...1000 Speed

STARTING FUEL DELIVERY

: 100 Speed rom

Del.quantity cm3/: 165.0...195.0 1000 s: (161.0...199.0)

Rack travel in mm : 11.90...12.50

LOW IDLE

Speed rpm : 300 Rack travel in mm : 5.80...6.20 Del.quantity cm3/: 30.0...36.0 1000 s: (26.0...40.0)

cm3 : 10.00 Spread

1000 s: (14.00)

Remarks:

Setting and blocking of pointer of start-of-delivery sensor on cyl. 1

start of delivery

Note remarks

Test sheet : MB 14,7 v 4
Edition : 21.06.91
Replaces : 3.6.91
Test oil : ISO-4113

Combination no. : 0 402 648 917

Injection pump

Pump designation : PE8P120A320LS7839 EP type number : 0 412 628 849

Governor

Governor design. : RQ300/1050PA993-3

Governer no. : 0 421 801 601

Customer-spec. information

Customer : MERCEDES-BENZ

Engine : 0M442 LA

1st version kW : 370.0 Rated speed : 2100

TEST BENCH REQUIREMENTS

Test oil

inlet temp. °C : 38...42

Overflow valve

: 1 417 413 025

Inlet press., bar: 1.50

Overflow

quantity min. 1/h: 100...120

Test nozzle holder

assembly : 1 688 901 105

Opening |

pressure, bar : 207...210

Orifice plate

diameter mm : 0,8

Test lines : 1 680 750 075

Outside diameter

x Wall thickness

x Length mm : 8.00x2.50x1000

(A) Injection pump setting values Insp. values in parentheses Set equal delivery quant.

per values ____

BEGINNING OF DELIVERY

Test pressure, bar: 25...27

Prestroke mm : 5.00...5.10

: (4.95...5.15)

Rack travel in mm : 20.00...21.00 Firing order : 8-7-2-6-3-5-

4-1

Phasing : 0-45-90-135-180-225-

270-315

Tolerance + - * : 0.50 (0.75)

Time to cyl. no. : 8

BASIC SETTING

1st speed rpm: 600

Rack travel in mm : 14.30...14.50

Del.quantity cm3/: 25.6...25.8

100 s: (25.3...26.1)

....

Spread cm3: 0.6

100 s: (0.9)

2nd speed rpm: 300.0

Rack travel in mm : 5.6...6.2 Del.quantity cm3/ : 1.6...2.2

100 s: (1.3...2.5)

Spread cm3: 0.6

100 s: (1.0)

GUIDE SLEEVE POSITION Control-lever position

Degree: -2

Speed rpm: 600

Rack travel in mm : 19.20...20.80

FULL LOAD DELIV. AT FULL LOAD STOP

1st version

Speed rpm: 600 Aneroid pressure h: 1050

Del.quantity : 256.0...258.0

1000 : (253.0...261.0)

Spread cm3 : 6.00

1000 : (9.00)

RATED SPEED

1st version

Setting point:

Speed rpm : 600

Rack travel in mm: 20.0 1st version Aneroid pressure h: 1900 Testing: Speed rpm : 1050
Del.quantity cm3/ : 271.0...274.0
1000 s: (268.0...277.0) 1st rack travel in: 14.30 Speed rpm : 1090...1105 2nd rack travel in: 4.00 cm3 : 8.00 rpm : 1160...1190 Speed Spread 1000 s: (12.0) 4th rack travel in: 1250 Aneroid pressure h: 1900 rpm : 0.00...1.50Speed : 800 Speed rpm Del.quantity cm3/: 276.0...280.0 1000 s: (273.0...283.0) LOW IDLE 1 Setting point w/out bumper spring rpm : 300 cm3 : 8.00 Spread Speed Rack travel in mm: 5.9 1000 s: (12.0) Aneroid pressure h: -Speed rpm : 500 Del.quantity cm3/ : 136.0...138.0 1000 s: (133.0...141.0) Testing: rpm : 200 Speed Minimum rack trave: 7.20 rpm : 300 Speed Spread cm3 : 8.00 Rack travel in mm : 5.60...6.20 Rack travel in mm : 2.00 1000 s: (12.0) : 380...420 Speed rom **BREAKAWAY** TORQUE CONTROL 1st version Dimension a mm 2nd speed npm : 1050 1mm rack travel less than Rack travel in m: 15.30...15.50 full load rack tr: 14.30 3rd speed rpm : 800 rpm : 1090...1105 Rack travel in m: 15.50...15.70 Speed Aneroid/Altitude STARTING FUEL DELIVERY Compensator Test : 100 Speed rpm Del.quantity cm3/: 275.0...295.0 1st version 1000 s: (271.0...299.0) Settina : 600 Speed rpm hPa : 1050 Remarks: Pressure Rack travel mm : 14.30...14.50 Measurement 1/min: 600 Speed 1st pressure hPa : 350 Rack travel in m: 9.10...9.30 2nd pressure hPa : 800 Rack travel in m: 12.10...12.30 3rd pressure hPa : 1300 Rack travel in m: 14.50...14.70 4th pressure hPa : 1600 Rack travel in m: 15.10...15.30 5th pressure hPa : Rack travel in m: 8.50...8.80 START CUT-OUT 1/min: 220 (240) Speed

FUEL DELIVERY CHARACTERISTICS

Note remarks

Test sheet : MB 14,7 x : 21.08.91 Edition

Replaces

Test oil : ISO-4113

Combination no. : D 402 648 919

Injection pump

Pump designation : PE8P120A320LS7843 : D 412 628 859 EP type number

Governor

Governor design. : RQV350...1050PA842-8

: 0 421 813 952 Governer no.

Customer-spec. information

: MERCEDES-BENZ Customer

: OM442 LA Engine

: 320.0 1st version kW : 2100 Rated speed

TEST BENCH REQUIREMENTS

Test oil

inlet temp. °C : 38...42

Overflow valve

· 1 417 413 025

Inlet press., bar: 1.50

Overflow

quantity min. 1/h: 100...120

Test nozzle holder

: 1 688 901 019 assembly

Openina

: 207...210 pressure, bar

Orifice plate

diameter mm : 0,8

: 1 680 750 067 Test Lines

Outside diameter

x Wall thickness

: 6.90x1.50x1000 x Length mm

(A) Injection pump setting values Insp. values in parentheses Set equal delivery quant. per values

BEGINNING OF DELIVERY

Test pressure, bar: 25...27

: 5.20...5.30 : (5.15...5.35) Prestroke mm

Rack travel in mm : 20.00...21.00 8-7-2-6-3-5-Firing order

: 0-45-90-135-180-225-Phasing

270-315

: 0.50 (0.75) Tolerance + - °

Time to cyl. no. : 8

BASIC SETTING

1st speed rpm : 600

Rack travel in mm : 14.50...14.70

Del.guantity cm3/: 22.9...23.1

100 s: (22.6...23.4)

cm3 : 0.5Spread

100 s: (0.9)

2nd speed rpm : 350.0 Rack travel in mm : 5.7...5.9 Del.quantity cm3/: 1.6...2.2

100 s: (1.3...2.5)

cm3 : 0.6Spread 100 s: (1.0)

(B) Setting of injection pump

with governor

GUIDE SLEEVE TRAVEL

350 1st speed rpm :

: 0.80...1.20 travel mm

: 510 2nd speed rpm

: 3.60...4.10 travel mm

rpm : 1100 3rd speed

7.80...8.40 travel mm

rpm : 1270 4th speed

: 11.00...12.00 travel mm

GUIDE SLEEVE POSITION Control-lever position

Degree: -1

rpm : 1125 Speed

Rack travel in mm : 16.50...18.00

FULL LOAD DELIV. AT FULL LOAD STOP

1st version

rpm : 600 Aneroid pressure h: 1000 : 229.0...231.0 Del.quantity 1000 : (226.0...234.0) cm3 : 5.00 Spread 1000 : (9.00) RATED SPEED 1st version Control Lever position degrees: 111...119 Testing: 1st rack travel in: 13.40 rpm : 1090...1100 Speed 2nd rack travel in: 4.00 rpm : 1130...1160 Speed 4th rack travel in: 1300 rpm : 0.00...1.00Speed LOW IDLE 1 Control Lever position degrees: 63...71 Testing: Speed rpm : 100 Minimum rack trave: 7.40 mon Rack travel in mm : 5.50...6.10 CONSTANT REGULATION rpm : 350...550 Speed TORQUE CONTROL Dimension a mm : 0.40 : 1050 2nd speed rpm Rack travel in m: 14.40...14.60 rpm : 800 3rd speed Rack travel in m: 14.80...15.00 Aneroid/Altitude Compensator Test 1st version Setting : 600 Speed rpm hPa : 1000 Pressure : 14.50...14.70 Rack travel mm Measurement 1/min: 600 Speed 1st pressure hPa : 400 Rack travel in m: 10.90...11.10 2nd pressure hPa : 550 Rack travel in m: 12.20...12.40 3rd pressure hPa : 1250

Rack travel in m: 14.60...14.80 *

4th pressure hPa : -Rack travel in m: 9.20...9.50 START CUT-OUT 1/min : 270 (290) Speed FUEL DELIVERY CHARACTERISTICS 1st version Aneroid pressure h: 1500 rpm : 1030 Del.quantity cm3/: 229.0...232.0 1000 s: (226.0...235.0) cm3 : 8.00 Spread 1000 s: (12.0) Aneroid pressure h: 1500 : 900 Speed rpm Del.quantity cm3/: 236.0...240.0 1000 s: (233.0...243.0) cm3 : 8.00 Spread 1000 s: (12.0) Aneroid pressure h: -Speed rpm : 500 Del.quantity cm3/: 136.0...138.0 1000 s: (133.0...141.0) cm3 : 8.00 Spread 1000 s: (12.0) **BREAKAWAY** 1st version 1mm rack travel less than full load rack tr: 13.40 Speed rpm : 1090...1100 STARTING FUEL DELIVERY Speed rpm : 100 Del.quantity cm3/ : 250.0...270.0 1000 s: (246.0...274.0)

Remarks:

* Increase in control-rod travel with respect to setting at least 0.1 mm

Note remarks

: MB 14,7 y : 21.08.91 Test sheet Edition

Replaces

: ISO-4113 Test oil

Combination no. : 0 402 648 920

Injection pump

Pump designation : PE8P120A320LS7844

EP type number : 0 412 628 860

Governor

: RQV350...1050PA870 Governor design.

-16

: 0 421 813 953 Governer no.

Customer-spec. information

: MERCEDES-BENZ Customer

: 0M442 LA Engine

: 370.0 1st version kW : 2100 Rated speed

TEST BENCH REQUIREMENTS

Test oil

inlet temp. °C : 38...42

Overflow valve

: 1 417 413 025

Inlet press., bar: 1.50

Overflow

quantity min. 1/h: 100...120

Test nozzle holder

: 1 688 901 019 assembly

Openina

pressure, bar : 207...210

Orifice plate

diameter mm : 0,8

: 1 680 750 067 Test lines

Outside diameter

x Wall thickness

: 6.00x1.50x1000 x Length mm

(A) Injection pump setting values Insp. values in parentheses Set equal delivery quant.

per values

BEGINNING OF DELIVERY

Test pressure, bar: 25...27

Prestroke mm : 4.80...4.90 : (4.75...4.95)
Rack travel in mm : 20.00...21.00

: 8- 7- 2- 6- 3- 5-Firing order

: 0-45-90-135-180-225-Phasing

270-315

Tolerance + - ° : 0.50 (0.75)

Time to cyl. no. : 8

BASIC SETTING

1st speed rpm: 600

Rack travel in mm : 14.40...14.60

Del.guantity cm3/: 25.2...25.4

100 s: (24.9...25.7)

cm3 : 0.5Spread

100 s: (0.9)

2nd speed rpm : 350.0 Rack travel in mm : 5.7...5.9 Del.quantity cm3/ : 1.6...2.2 100 s: (1.3...2.5)

cm3 : 0.6Spread

100 s: (1.0)

(B) Setting of injection pump

with governor

GUIDE SLEEVE TRAVEL

1st speed rpm : 350

travel mm : 0.80...1.20

rpm : 1270 4th speed

: 11.00...12.00 travel mm

GUIDE SLEEVE POSITION Control-lever position

Degree: -1 rpm : 1125 Speed

Rack travel in mm : 16.50...18.00

FULL LOAD DELIV. AT FULL LOAD STOP

1st version

Speed rpm : 600 Aneroid pressure h: 1000

: 252.0...254.0 Del.quantity 1000 : (249.0...257.0) cm3 : 5.00 Spread 1000 : (9.00) RATED SPEED 1st version Control lever position degrees: 111...119 Testing: 1st rack travel in: 14.50 rpm : 1090...1100 Speed 2nd rack travel in: 4.00 Speed rpm : 1170...1200 4th rack travel in: 1300 Speed rpm : 0.00...1.00 LOW IDLE 1 Control lever position degrees: 63...71 Testing: Speed : 100 rom Minimum rack trave: 7.40 rpm : 350 Rack travel in mm : 5.50...6.10 CONSTANT REGULATION rpm : 350...550 Speed TORQUE CONTROL : 0.70 Dimension a mm 2nd speed rpm : 1050 Rack travel in m: 15.50...15.70 3rd speed rpm : 800 Rack travel in m: 16.20...16.40 Aneroid/Altitude Compensator Test 1st version Setting : 600 Speed rom hPa : 100 Pressure Rack travel mm : 14.40...14.60 Measurement 1/min: 600 Speed 1st pressure hPa : 290
Rack travel in m: 9.00...9.20
2nd pressure hPa : 780
Rack travel in m: 13.50...13.70
3rd pressure hPa : 1200
Rack travel in m: 14.50...14.70 *
4th pressure hPa : 1380

Rack travel in m: 15.40...15.60

5th pressure hPa : -Rack travel in m: 8.90...10.20 START CUT-OUT 1/min: 270 (290) Speed FUEL DELIVERY CHARACTERISTICS 1st version Aneroid pressure h: 1800 : 1050 Speed rpm Del.quantity cm3/: 274.0...277.0 1000 s: (271.0...280.0) cm3 : 8.00 Spread 1000 s: (12.0) Aneroid pressure h: 1800 : 800 Speed rpm Del.quantity cm3/: 295.0...299.0 1000 s: (292.0...302.0) Spread cm3 : 8.00 1000 s: (12.0) Aneroid pressure h: -: 500 Speed rpm Del.quantity cm3/: 139.0...141.0 1000 s: (136.0...144.0) cm3 : 8.00Spread 1000 s: (12.0) **BREAKAWAY** 1st version 1mm rack travel less than full load rack tr: 14.50 rpm : 1090...1100 Speed STARTING FUEL DELIVERY rpm : 100 Speed Del.quantity cm3/ : 280.0...300.0 1000 s: (276.0...304.0) Remarks: * Increase in control-rod travel with respect to setting at least 0.1 mm

Note remarks

: MB 18,3 L 4 Test sheet : 26.07.91 Edition

Replaces

Test oil : ISO-4113

Combination no. : 0 402 649 800A

Injection pump

Pump designation : PE10P120A320LS7809

EP type number : 0 412 629 800

Governor

: RQ300/1050PA856 Governor design. Governer no. : 0 421 801 386

Customer-spec. information

: MERCEDES-BENZ Customer

: CM/443 LA Engine

1st version kW : 370.0 : 2100 Rated speed

TEST BENCH REQUIREMENTS

Test oil

inlet temp. °C : 38...42

Overflow valve

: 1 417 413 025

Inlet press., bar: 1.50

Overflow

quantity min. 1/h: 130...150

Test nozzle holder

: 1 688 901 019 assembly

Opening

pressure, bar : 207...210

Orifice plate

diameter mm : 0.8

: 1 680 750 067 Test Lines

Outside diameter

x Wall thickness

x Length mm : 6.00x1.50x1000

(A) Injection pump setting values Insp. values in parentheses Set equal delivery quant.

per values

BEGINNING OF DELIVERY

Test pressure, bar: 25...27

: 4.00...4.10 Prestroke mm

: (3.95...4.15)

Rack travel in mm : 20.00...21.00 : 10-9-4-1-8-7-Firing order

6- 3- 5- 2

Phasing : 0-45-72-117-144-189-

216-261-288-333 : 0.50 (0.75) Tolerance + - °

Time to cyl. no. : 10

BASIC SETTING

rpm: 600 1st speed

(ack travel in mm : 13.90...14.10)

Del. rentity cm3/: 20.4...20.6

100 s: (20.1...20.9)

cm3 : 0.5Spread

100 s: (0.9)

2nd speed rpm : 300.0

Rack travel in mm: 6.6...6.8

Del.quantity cm3/: 1.6...2.2 100 s: (1.3...2.5)

cm3 : 0.6 Spread 100 s: (1.0)

GUIDE SLEEVE POSITION

Control-lever position Degree: -2

rpm : 600 Speed

Rack travel in mm : 19.20...20.80

FULL LOAD DELIV. AT FULL LOAD STOP

1st version

Speed rpm : 600 Aneroid pressure h: 700

Del.quantity : 204.0...209.0)

: 5.00 Spread cm3

1000 : (9.00)

RATED SPEED

1st version

Setting point:

Speed : 600 rpm

Rack travel in mm: 20.0 Testina: 1st rack travel in: 12.70 res: : 1095...1110 Speed 2nd rack travel in: 4.00 rpm : 1145...1175 Speed 4th rack travel in: 1300 rpm : 0.00...1.50 Speed LOW IDLE 1 Setting point w/out bumper spring rpm : 300 Rack travel in mm: 6.7 Testing: Speed rom : 100 Minimum rack trave: 8.30 rpm : 300 Rack travel in mm : 6.60 ... 6.80 Rack travel in mm : 2.00 Speed rpm : 380...420 TORQUE CONTROL Dimension a mm : ? 2nd speed rpm : 1050 Rack travel in m: 13.70...13.90 3rd speed rpm : 800 Rack travel in m: 14.30...14.50 Aneroid/Altitude Compensator Test 1st version Setting : 600 Speed rpm hPa : 700 Pressure : 13.90...14.10 Rack travel mm Measurement 1/min: 600 Speed 1st pressure hPa : 400 Rack travel in m: 12.30...12.50 2nd pressure hPa : 600 Rack travel in m: 12.80...13.00 3rd pressure hPa : 960 Rack travel in m: 14.20...14.30 4th pressure hPa : 1100 Rack travel in m: 14.80...15.00 5th pressure hPa : -Rack travel in m: 11.20...11.40 START CUT-OUT 1/min: 220 (240) Speed FUEL DELIVERY CHARACTERISTICS

1st version Aneroid pressure h: 1300 Speed rpm : 1050
Del.quantity cm3/: 206.0...209.0
1000 s: (203.0...212.0) cm3 : 8.00 Spread 1000 s: (12.0) Aneroid pressure h: 1300 : 800 Speed rpm Del.quantity cm3/: 217.0...221.0 1000 s: (214.0...224.0) Spread cm3 : 8.00 1000 s: (12.0) Aneroid pressure h: -Speed rpm : 500
Del.quantity cm3/: 133.0...135.0
1000 s: (130.0...138.0) cm3 : 8.00Spread 1000 s: (-)

BREAKAWAY

1st version 1mm rack travel less than

full load rack tr: 12.70 Speed rpm : 1095...1110

STARTING FUEL DELIVERY

Speed rpm : 100 Del.quantity cm3/ : 230.0...250.0 1000 s: (226.0...254.0)

Remarks:

M28

Note remarks

: MB 18,3 t 3 : 21.08.91 Test sheet Edition : 24.4.91 Replaces

: ISO-4113 Test oil

: 0 402 649 810 Combination no.

Injection pump

Pump designation : PE10P120A320LS7809

EP type number : 0 412 629 800

Governor

Governor design. : RQV350...1050PA870-6

: 0 421 813 766 Governer no.

Customer-spec. information

: MERCEDES-BENZ Customer

: 0M443 LA Engine

1st version kW : 401.0 Rated speed : 2100

TEST BENCH REQUIREMENTS

Test oil

inlet temp. °C : 38...42

Overflow valve

: 1 417 413 025

Inlet press., bar: 1.50

Overflow

quantity min. 1/h: 130...150

Test nozzle holder

: 1 688 901 019 assembly

Opening

: 207...210 pressure, bar

Orifice plate

diameter mm : 0,8

Test lines : 1 680 750 067

Outside diameter

x Wall thickness

x Length mm : 6.00x1.50x1000

(A) Injection pump setting values Insp. values in parentheses Set equal delivery quant.

per values ____

BEGINNING OF DELIVERY

Test pressure, bar: 25...27

: 4.00...4.10 Prestroke mm

: (3.95...4.15)

Rack travel in mm : 20.00...21.00

: 10- 9- 4- 1-Firing order

: 0-45-72-117-144-189-Phasing

216-261-288-333

Tolerance + - ° : 0.50 (0.75)

Time to cyl. no. : 10

BASIC SETTING

1st speed rpm: 600

Rack travel in mm : 14.30...14.50

Del.quantity cm3/: 21.1...21.3

100 s: (20.8...21.6)

Spread cm3 : 0.5

100 s: (0.9)

rpm : 350.02nd speed

Rack travel in mm : 6.2...6.8 Del.quantity cm3/ : 1.6...2.2 100 s: (1.3...2.5)

cm3 : 0.6Spread

100 s: (1.0)

(B) Setting of injection pump

with governor

GUIDE SLEEVE TRAVEL

rpm : 350 1st speed

: 1.90...2.10 travel mm rpm : 700 2nd speed

: 4.10...4.50 travel mm

rpm : 1100 3rd speed

travel mm : 7.60...8.00

rpm : 1200 4th speed

travel mm : 9.50...9.90

GUIDE SLEEVE POSITION

Control-lever position

Degree: -1

rpm : 1100 Speed

Rack travel in mm : 15.20...17.80

FULL LOAD DELIV. AT FULL LOAD STOP

1st version

Rack travel in m: 14.80...15.00 Aneroid pressure h: 750 : 211.0...213.0 1000 : (208.0...216.0) Del.quantity 5th pressure hPa : -Rack travel in m: 11.10...11.40 cm3 : 5.00 1000 : (9.00) Spread START CUT-OUT 1/min: 270 (290) RATED SPEED Speed FUEL DELIVERY CHARACTERISTICS 1st version Control lever position degrees: 114...122 1st version Aneroid pressure h: 1300 Speed rpm : 1050 Del.quantity cm3/: 224.0...226.0 1000 s: (221.0...229.0) Testing: 1st rack travel in: 13.70 rpm : 1090...1100 Speed 2nd rack travel in: 4.00 cm3 : 8.00 rpm : 1165...1195 Spread 4th rack travel in: 1300 1000 s: (12.0) Aneroid pressure h: 1300 rpm : 0.00...1.00 Speed Speed rom Del.quantity cm3/: 232.0...236.0 1000 s: (229.0...239.0) Spread cm3 : 8.00 1000 s: (12.0) LOW IDLE 1 Control lever position degrees: 64...72 Aneroid pressure h: 1300 Testing: Speed rpm: 1050
Del.quantity cm3/: 168.0...170.0
1000 s: (165.0...173.0) Speed rpm : 200 Minimum rack trave: 8.60 rpm : 350 Speed cm3 : 8.00 Rack travel in mm : 6.20...6.80 Spread 1000 s: (12.0) CONSTANT REGULATION Aneroid pressure h: -Speed rpm : 500 Del.quantity cm3/ : 132.0...136.0 rpm : 300...400 Speed 1000 s: (129.0...139.0) TORQUE CONTROL cm3 : 8.00 Dimension a mm : 0.40 Spread 2nd speed rpm : 1050 Rack travel in m: 14.70...14.90 1000 s: (-) 3rd speed rpm : 850 Rack travel in m: 15.10...15.30 BREAKAWAY Aneroid/Altitude 1st version 1mm rack travel less than Compensator Test full load rack tr: 13.70 1st version Setting rom : 1090...1100 Speed : 600 STARTING FUEL DELIVERY Speed rpm hPa : 900 Pressure Rack travel mm : 14.30...14.50 rpm : 100 Speed Measurement Speed 1/min: 600 1st pressure hPa : 400 Rack travel in m: 11.70...11.90 2nd pressure hPa : 550 Remarks: Rack travel in m: 13.20...13.40 3rd pressure hPa : 960 Rack travel in m: 14.40...14.50 *

rpm : 600

Speed

Del.quantity cm3/: 240.0...260.0 1000 s: (236.0...264.0) * Increase in control-rod travel with respect to setting at least 0.1 mm

4th pressure hPa : 1100

Note remarks

: MAN 18,2 h1 Test sheet 21.06.91 27.5.91 Edition Replaces : ISO-4113 Test oil

Combination no. : 0 402 649 813

Injection pump

Pump designation : PE10P120A520LS7825-1

: 0 412 629 809 EP type number

Governor

Governor design. : RQV250...1150PA902-3

: 0 421 813 761 Governer no.

Customer-spec. information Customer

: D 2840 LXE Engine

: 603.0 1st version kW : 2300 Rated speed

TEST BENCH REQUIREMENTS

Test oil

inlet temp. °C : 38...42

Overflow valve

: 1 417 413 025

Inlet press., bar: 1.50

Test nozzle holder

: 1 688 901 019 assembly

Openina

: 207...210 pressure, bar

Orifice plate

diameter mm : 0,8

: 1 680 750 067 Test lines

Outside diameter x Wall thickness

: 6.00X1.50X1000 x Lenath mm

(A) Injection pump setting values Insp. values in parentheses Set equal delivery quant.

per values

BEGINNING OF DELIVERY

Test pressure, bar: 25...27

: 4.50...4.60 Prestroke mm : (4.45...4.65)

Rack travel in mm : 9.00...12.00 : 10- 9- 4- 1- 8- 7-Firing order

6-3-5-2

: 0-45-72-117-144-189-216-261-288-333 : 0.50 (0.75) Phasing

Tolerance + - °

Time to cyl. no. : 10

BASIC SETTING

1st speed rpm: 1150

Rack travel in mm : 13.40...13.50

Del.quantity cm3/: 29.6...29.8

100 s: (29.3...30.1)

cm3 : 0.5Spread

100 s: (0.9)

2nd speed rpm : 500

Rack travel in mm: 8.80...9.00 Del.quantity cm3/: 14.9...15.1 100 s: (14.6...15.4)

cm3 : 0.8Spread 100 s: (1.2)

rpm : 250 3rd speed

Rack travel in mm : 7.30...7.50 Del.quantity cm3/ : 5.2...6.0 **

100 s: (-)

cm3 : -Spread

100 s: (-)

(B) Setting of injection pump

with governor

GUIDE SLEEVE TRAVEL

1st speed rpm : 250

: 0.90...1.10 travel mm rpm : 450 2nd speed

: 2.90...3.50 travel mm

rpm : 7503rd speed

: 5.50...5.90 travel mm

: 1150 4th speed rpm

9.20...9.40 travel mm

1400 5th speed man

: 13.00...14.00 travel mm

GUIDE SLEEVE POSITION Control-lever position

Degree: -1

Speed rpm : 1225

1/min : 200 (220) Rack travel in mm : 15.20...17.80 Speed FULL LOAD DELIV. AT FULL LOAD STOP FUEL DELIVERY CHARACTERISTICS 1st version rpm : 1150 1st version Speed Aneroid pressure h: 1300 Aneroid pressure h: -Speed rpm : 500 Del.quantity cm3/ : 149.0...151.0 : 296.0...298.0 Del.quantity 1000 : (293.0...301.0) cm3 : 5.00 1000 s: (146.0...154.0) Spread 1000 : (9.00) cm3 : 8.00 Spread 1000 s: (12.0) RATED SPEED BREAKAWAY 1st version Control lever 1st version position degrees: 118...126 1mm rack travel less than Testing: 1st rack travel in: 12.40 Speed rpm : 1190...1200 full load rack tr: 12.40 Speed rpm : 1190...1200 2nd rack travel in: 4.00 rpm : 1285...1315 STARTING FUEL DELIVERY Speed 4th rack travel in: 1450 rpm : 0.00...1.00Speed rpm : 100 Speed Del.quantity cm3/: 100.0...120.0** LOW IDLE 1 1000 s: (-) Control lever position degrees: 76...84 Speed rpm : 100 Del.quantity cm3/: 0 * 1000 s: (-) Testina: rpm : 100 Speed Minimum rack trave: 8.90 Rack travel in mm : 17.5...21.0 Speed rpm : 250
Rack travel in mm : 7.30...7.50
Rack travel in mm : 2.00 HIGH IDLE rpm : 430...490 1st version Speed Speed rpm : 500 Rack travel in mm: < 7.00 Aneroid/Altitude Del.quantity cm3/ : 0 * 1000 s: (-) Compensator Test 1st version 2nd version 📝 rpm : 500 Setting Speed Rack travel in mm: < 7.50 Speed : 500 rpm Del.quantity cm3/: < 50.0 1000 s: (-) hPa : 1300 Pressure : 13.00...13.10 Rack travel mm 3rd version Measurement Speed rpm : 500 Rack travel in mm : 8.10...8.30 1/min : 500 Speed Del.quantity cm3/: 125.0... 1000 s: (-) 1st pressure hPa : -Rack travel in m: 8.80...9.00 2nd pressure hPa : 100 Rack travel in m: 9.30...9.40 3rd pressure hPa : 470 LOW IDLE Speed rpm : 250
Rack travel in mm : 7.30...7.50
Del.quantity cm3/ : 52.0...60.0 **
1000 s: (-) Rack travel in m: 12.00...12.40 START CUT-OUT

Remarks:

: MAN-NR. 3-7151

* applies to cylinders 1, 2, 3, 7 and 9
** applies for cylinders 4, 5, 6, 8 and 10

APPLICATION

Ship

Note remarks

: MB 21,9 j 4 Test sheet : 21.06.91 Edition

Replaces

: ISO-4113 Test oil

Combination no. : 0 402 670 804

Injection pump

Pump designation : PE12P120A320LS7813-1

: 0 412 620 811 EP type number

Governor

Governor design. : RSV350...750POA825-5

: 0 421 833 277 Governer no.

Cust. part no. : T3

Customer-spec. information

: MERCEDES-BENZ Customer

: OM 444 LA Engine

: 441.0 1st version kW : 1500 Rated speed

TEST BENCH REQUIREMENTS

Test oil

inlet temp. °C : 38...42

Overflow valve

: 1 417 413 025

Inlet press., bar: 1.50

Overflow

quantity min. 1/h: 150...170

Test nozzle holder

: 1 688 901 019 assembly

Opening

: 207...210 pressure, bar

Orifice plate

diameter mm : 0,8

Test Lines : 1 680 750 067

Outside diameter

x Wall thickness

: 6.00x1.50x1000 x Length mm

(A) Injection pump setting values Insp. values in parentheses Set equal delivery quant.

per values

BEGINNING OF DELIVERY

Test pressure, bar: 25...27

: 5.20...5.30 : (5.15...5.35) Prestroke mm

Rack travel in mm : 19.00...21.00

: 12- 1- 5- 9- 8- 3-4- 11- 10- 2- 6- 7 Firing order

: 0-45-60-105-120-165-Phasing

180-225-240-285-300-

345

Tolerance + - ° : 0.50 (0.75)

Time to cyl. no. : 12

BASIC SETTING

1st speed rpm : 700

Rack travel in mm : 16.50...16.60

Del.quantity cm3/: 28.0...28.2

100 s: (27.7...28.5)

Spread cm3 : 0.5

100 s: (0.9)

2nd speed rpm : 350.0 Rack travel in mm : 5.5...5.9 Del.quantity cm3/ : 1.4...2.0 100 s: (1.1...2.3)

cm3 : 0.8 Spread

100 s: (1.2)

GUIDE SLEEVE POSITION Control-lever position

Degree: -3

008: mar Rack travel in mm : 0.30...1.00

Governor spring pre-tension

Click setting x : ?

FULL LOAD DELIV. AT FULL LOAD STOP

1st version

rpm : 700 Speed

: 280.0...282.0 Del.quantity

1000 : (277.0...285.0)

cm3 : 5.00 1000 : (9.00) Spread

RATED SPEED

1st version Control lever

position degrees: 20...28

Testing:

1st rack travel in: 15.50 Speed rpm : 750...755 2nd rack travel in: 4.00 Speed rpm : 775...788 4th rack travel in: 900

rpm : 0.30...1.70 Speed

LOW IDLE 1 Control lever

position degrees: 9...17

Setting point w/out bumper spring

Speed rpm : 350
Rack travel in mm : 5.7
Speed rpm : 350
Rack travel in mm : 5.50...5.90

SET IDLE AUXILIARY SPRING Rack travel in mm: 2.00

BREAKAWAY

1st version 1mm rack travel less than

full load rack tr: 15.50 rpm : 750...755 Speed

STARTING FUEL DELIVERY

Speed rpm : 100 Del.quantity cm3/ : 260.0...280.0 1000 s: (256.0...284.0)

Remarks:

Note remarks

: MB 14,7 g12 Test sheet Edition : 21.06.91

Replaces

Test oil : ISO-4113

Combination no. : 0 402 678 808

Injection pump

Pump designation : PE8P120A320LS7801-2

: 0 412 628 825 EP type number

Governor

Governor design. : RSV350...1050P0A535

: 0 421 833 281 Governer no.

Cust. part no. : T3

Customer spec. information

Customer : MERCEDES-BENZ

: 0M442LA Engine

1st version kW : 320.0 : 2100 Rated speed

TEST BENCH REQUIREMENTS

Test oil

inlet temp. °C : 38...42

Overflow valve

: 1 417 413 025

Inlet press., bar: 1.50

Overflow

quantity min. 1/h: 100...120

Test nozzle holder

: 1 688 901 019 assembly

Openina

: 207...210 pressure, bar

Orifice plate

diameter mm : 0,8

Test lines : 1 680 750 067

Outside diameter

x Wall thickness

: 6.00x1.50x1000 x Length mm

(A) Injection pump setting values Insp. values in parentheses Set equal delivery quant. per values

BEGINNING OF DELIVERY

Test pressure, bar: 25...27

Prestroke mm : 5.20...5.30 : (4.15...5.35) Rack travel in mm : 9.00...12.00 Firing order : 8-7-2-6-3-5-4-1

: 0-45-90-135-180-225-Phasing 270-315

: 0.50 (0.75) Tolerance + - °

Time to cyl. no. : 8

BASIC SETTING

1st speed rpm: 600

Rack travel in mm : 14.50...14.60

Del.guantity cm3/: 21.5...21.8

100 s: (21.2...22.1)

Spread cm3 : 0.5

100 s: (0.9)

2nd speed rpm : 350.0 Rack travel in mm: 5.6...5.8

Del.quantity cm3/: 1.5...2.1 100 s: (1.2...2.4)

cm3 : 0.8Spread 100 s: (1.2)

GUIDE SLEEVE POSITION Control-lever position

Degree: -3

rpm : 800 Speed Rack travel in mm : 0.30...0.70

Governor spring pre-tension

Click setting x : ?

FULL LOAD DELIV. AT FULL LOAD STOP

1st version

Speed rpm : 600 Aneroid pressure h: 750

Del.quantity : 273.0...221.0)

cm3 : 5.00 1000 : (9.00) Spread RATED SPEED 1st version Control lever position degrees: 86...94 Testing: 1st rack travel in: 14.00 rpm : 1070...1080 Speed 2nd rack travel in: 4.00 rpm : 1130...1160 Speed 4th rack travel in: 1400 rpm : 0.30...1.40Speed LOW IDLE 1 Control Lever position degrees: 63...71 Setting point w/out bumper spring rpm : 350 Rack travel in mm: 5.7 Testing: Speed rpm : 100 Minimum rack trave: 19.50 Speed rpm: 350 Rack travel in mm: 5.60...5.80 Rack travel in mm: 2.00 rpm : 360...420SET IDLE AUXILIARY SPRING Rack travel in mm : 2.00 TORQUE CONTROL Torque control curve - 1st version 1st speed rpm : 1030 Rack travel in m: 15.00...15.20 2nd speed rpm : 850 Rack travel in m: 15.70...15.90 3rd speed rpm : 925 Rack travel in m: 15.40...15.60 Aneroid/Altitude Compensator Test 1st version Setting : 600 Speed rpm hPa : 750 Pressure : 14.50...14.60 Rack travel mm Measurement 1/min : 600Speed 1st pressure hPa : 400 Rack travel in m: 12.20...12.40

Rack travel in m: 13.70...13.90 3rd pressure hPa : 950 Rack travel in m: 14.90...15.10 4th pressure hPa : 1050 Rack travel in m: 15.30...15.50 5th pressure hPa : Rack travel in m: 11.20...11.50 FUEL DELIVERY CHARACTERISTICS 1st version Aneroid pressure h: 1250 Speed rpm : 1030 Del.quantity cm3/: 230.0...233.0 1000 s: (227.0...236.0) cm3 : 8.00 Spread 1000 s: (12.0) Aneroid pressure h: 1250 : 850 Speed man Del.quantity cm3/: 242.0...246.0 1000 s: (239.0...249.0) cm3 : 8.00Spread 1000 s: (12.0) Aneroid pressure h: -: 500 Speed rpm Del.quantity cm3/: 147.0...149.0 1000 s: (144.0...152.0) cm3 : 8.00 Spread 1000 s: (-) BREAKAWAY 1st version 1mm rack travel less than full load rack tr: 14.00 rpm : 1070...1080 beea STARTING FUEL DELIVERY rpm : 100 Speed Del.quantity cm3/: 240.0...260.0 1000 s: (236.0...264.0) Observe VDT-I-420/120 emarks:

2nd pressure hPa : 550

Note remarks

: MB 14,7 g13 Test sheet : 21.06.91 Edition

Replaces

: ISO-4113 Test oil

Combination no. : 0 402 678 810

Injection pump

Pump designation: PE8P120A320LS7801-2

EP type number : 0 412 628 825

Governor

Governor design. : RSV450...1050POA541

Governer no. : 0 421 833 303

Cust. part no. : T3

Customer-spec. information

Customer : MERCEDES-BENZ

: 0M442A Engine

1st version kW : 260.0 : 2100 Rated speed

TEST BENCH REQUIREMENTS

Test oil

inlet temp. °C : 38...42

Overflow valve

: 1 417 413 025

Inlet press., bar: 1.50

Overflow

quantity min. 1/h: 100...120

Test nozzle holder

: 1 688 901 019 assembly

Openina

pressure, bar : 207...210

Orifice plate

diameter mm : 0,8

Test lines : 1 680 750 067

Outside diameter

x Wall thickness

: 8.00x2.50x1000 x Length mm

(A) Injection pump setting values Insp. values in parentheses Set equal delivery quant. per values

BEGINNING OF DELIVERY

Test pressure, bar: 25...27

: 5.20...5.30 Prestroke mm

: (4.15...5.35)

Rack travel in mm : 9.00...12.00

Firing order : 8-7-2-6-3-5-

: 0-45-90-135-180-225-Phasing

270-315

Tolerance + - ° : 0.50 (0.75)

Time to cyl. no. : 8

BASIC SETTING

1st speed rpm: 1030

Rack travel in mm : 12.70...12.80

Del.quantity cm3/: 18.1...18.3

100 s: (17.8...18.6)

Spread cm3 : 0.5

100 s: (0.9)

rpm : 450.0 2nd speed Rack travel in mm: 4.9...5.2

Del.quantity cm3/: 1.6...2.2

100 s: (1.3...2.5) cm3 : 0.8

Spread 100 s: (1.2)

GUIDE SLEEVE POSITION Control-lever position

Degree: -3
Speed rpm: 800
Rack travel in mm: 0.30...0.70

Governor spring pre-tension

Click setting x : ?

FULL LOAD DELIV. AT FULL LOAD STOP

1st version

rpm : 1030 Speed Aneroid pressure h: 1100

Del.quantity : 181.0...186.0)

cm3 : 5.00 1000 : (9.00) Spread

RATED SPEED

1st version Control Lever

position degrees: 88...96

Testing:

1st rack travel in: 11.70 Speed rpm : 1060...1070

2nd rack travel in: 4.00

: 1110...1130 Speed rom

4th rack travel in: 1400

rpm : 0.30...1.40 Speed

LOW IDLE 1

Control lever

position degrees: 67...75

Setting point w/out bumper spring

rpm : 450 Rack travel in mm: 5.0

Testing:

: 100 Speed rpm Minimum rack trave: 19.50

rpm : 450 Speed

Rack travel in mm : 4.90...5.20

Rack travel in mm : 2.00 rpm : 460...520 Speed

SET IDLE AUXILIARY SPRING Rack travel in mm : 2.00

TORQUE CONTROL

Torque control curve - 1st version

rpm : 1030 1st speed

Rack travel in m: 12.70...12.80

2nd speed rpm : 950

Rack travel in m: 13.10...13.30

rpm : 800 3rd speed

Rack travel in m: 13.80...14.00 4th speed rpm : 700

Rack travel in m: 14.30...14.50

Aneroid/Altitude Compensator Test

1st version Setting

: 500 Speed rom Pressure hPa :

: 11.00...11.30 Rack travel mm

Measurement

1/min: 500 Speed

1st pressure hPa : 420

N12

Rack travel in m: 11.70...11.90

2nd pressure hPa : 600 Rack travel in m: 13.40...13.60

FUEL DELIVERY CHARACTERISTICS

1st version

Aneroid pressure h: 1100

Speed : 700 rpm

Del.quantity cm3/: 213.0...217.0 1000 s: (210.0...220.0)

cm3 : 8.00 Spread

1000 s: (12.0)

Aneroid pressure h: -

rpm : 500 Speed

Del.quantity cm3/: 143.0...145.0

1000 s: (140.0...148.0)

cm3 : 8.00 Spread

1000 s: (12.0)

BREAKAWAY

1st version

1mm rack travel less than

full load rack tr: 11.70

rpm : 1060...1070 Speed

STARTING FUEL DELIVERY

Speed rpm : 100 Del.quantity cm3/ : 180.0...200.0

1000 s: (176.0...204.0)

APPLICATION

emarks:

Forage harvester :

Note remarks

Test sheet : MB 14,7 g14 Edition : 21.06.91

Replaces

: ISO-4113 Test oil

Combination no. : 0 402 678 812

Injection pump

Pump designation : PE8P120A320LS7801-2

EP type number : 0 412 628 825

Governor

: RSV350...1050P0A535-Governor design.

: 0 421 833 318 Governer no.

: T3 Cust. part no.

Customer-spec. information

: MERCEDES-BENZ Customer

: 0M442A Engine

: 260.0 : 2100 1st version kW Rated speed

TEST BENCH REQUIREMENTS

Test oil

inlet temp. °C : 38...42

Overflow valve

: 1 417 413 025

Inlet press., bar: 1.50

Overflow

quantity min. 1/h: 100...120

Test nozzle holder

: 1 688 901 019 assembly

Opening |

: 207...210 pressure, bar

Orifice plate

diameter mm : 0,8

Test Lines : 1 680 750 067

Outside diameter

x Wall thickness

: 8.00x2.50x1000 x Length mm

(A) Injection pump setting values Insp. values in parentheses Set equal delivery quant.

per values

BEGINNING OF DELIVERY

Test pressure, bar: 25...27

Prestroke mm : 5.20...5.30 : (4.15...5.35) Rack travel in mm : 9.00...12.00 Firing order : 8-7-2-6-3-5-Firing order

Firing order

: 0-45-90-135-180-225-Phasina

270-315

Tolerance + - ° : 0.50 (0.75)

Time to cyl. no. : 8

BASIC SETTING

rpm : 10301st speed

Rack travel in mm : 12.80...12.90

Del.guantity cm3/: 18.1...18.3

100 s: (17.8...18.6)

cm3 : 0.5Spread

100 s: (0.9)

2nd speed rpm : 350.0
Rack travel in mm : 5.4...6.0
Del.quantity cm3/ : 1.5...2.1
100 s: (1.2...2.4)
Spread cm3 : 0.8

100 s: (1.2)

GUIDE SLEEVE POSITION

Control-lever position Degree: -3

rpm : 800 Speed

Rack travel in mm : 0.30...0.70

Governor spring pre-tension

Click setting x : ?

FULL LOAD DELIV. AT FULL LOAD STOP

1st version

rpm : 1030Speed Aneroid pressure h: 1100

Del.quantity : 781.0...186.0)

cm3 : 5.00 Spread 1000 : (9.00) RATED SPEED 1st version Control lever position degrees: 86...94 Testing: 1st rack travel in: 11.80 rpm : 1070...1080 Speed 2nd rack travel in: 4.00 Speed rpm : 1130...1160 4th rack travel in: 1400 rpm : 0.30...1.40 Speed LOW IDLE 1 Control Lever position degrees: 63...71 Setting point w/out bumper spring Speed rpm Rack travel in mm: 5.7 Testing: Speed rpm : 100 Minimum rack trave: 19.50 Speed rpm : 350
Rack travel in mm : 5.40...6.00
Rack travel in mm : 2.00 : 410...480 rom SET IDLE AUXILIARY SPRING Rack travel in mm : 2.00 TORQUE CONTROL Torque control curve - 1st version 1st speed rpm : 1030 Rack travel in m: 12.80...12.90 rpm : 950 2nd speed Rack travel in m: 13.10...13.30 3rd speed rpm : 830 Rack travel in m: 13.80...14.00 4th speed rpm : 700 Rack travel in m: 14.40...14.60 Aneroid/Altitude Compensator Test 1st version Setting rpm : 500 Speed Pressure hPa : -: 11.20...11.50 Rack travel mm Measurement 1/min: 500 Speed 1st pressure hPa : 420

M14

Rack travel in m: 11.90...12.10 2nd pressure hPa : 600 Rack travel in m: 13.50...13.70 FUEL DELIVERY CHARACTERISTICS 1st version Aneroid pressure h: 1100 Speed rom : 700 Del.quantity cm3/: 213.0...217.0 1000 s: (210.0...220.0) cm3 : 8.00 Spread 1000 s: (12.0) Aneroid pressure h: -Speed rpm : 500 Del.quantity cm3/ : 143.0...145.0 1000 s: (140.0...148.0) cm3 : 8.00 Spread 1000 s: (12.0) **BREAKAWAY** 1st version 1mm rack travel less than full load rack tr: 11.80 rpm : 1070...1080 Speed STARTING FUEL DELIVERY Speed : 100 rpm Del.quantity cm3/: 180.0...200.0 1000 s: (176.0...204.0) Observe VDT-I-420/120

Note remarks

Test sheet : MB 14,7 g 9 : 21.06.91 Edition : 27.5.91 Replaces Test oil : ISO-4113

Injection pump

Combination no.

Pump designation : PE8P120A320LS7801-2

: 0 402 678 814

EP type number : 0 412 628 825

Governor

Governor design. : RSV350...1050P0A535-

: 0 421 833 352 Governer no.

Customer-spec. information

: MERCEDES-BENZ Customer

: 0M442A Engine

: 260.0 : 2100 1st version kW Rated speed

TEST BENCH REQUIREMENTS

Test oil

inlet temp. °C : 38...42

Overflow valve

: 1 417 413 025

Inlet press., bar: 1.50

Overflow

quantity min. 1/h: 100...120

Test nozzle holder

: 1 688 901 019 assembly

Opening |

pressure, bar : 207...210

Orifice plate

diameter mm : 0,8

: 1 680 750 067 Test lines

Outside diameter

x Wall thickness

: 6.00x1.50x1000 x Length mm

(A) Injection pump setting values Insp. values in parentheses Set equal delivery quant.

per values ____

BEGINNING OF DELIVERY

Test pressure, bar: 25...27

: 5.20...5.30 Prestroke mm

: (4.15...5.35) Rack travel in mm : 9.00...12.00

: 8-7-2-6-3-5-Firing order

: 0-45-90-135-180-225-Phasing

270-315

: 0.50 (0.75) Tolerance + - °

Time to cyl. no. : 8

BASIC SETTING

1st speed rom: 500

Rack travel in mm: 13.90...14.10

Del.quantity cm3/: 20.1...20.3

100 s: (19.8...20.6)

cm3 : 0.5Spread

100 s: (0.9)

2nd speed rpm : 350.0
Rack travel in mm : 5.6...5.8
Del.quantity cm3/ : 1.6...2.2
100 s: (1.3...2.5)
Spread cm3 : 0.8

100 s: (1.2)

GUIDE SLEEVE POSITION Control-lever position

Degree: -3

rpm : 800 Speed Rack travel in mm : 0.30...0.70

Governor spring pre-tension

Click setting x : 4.00

FULL LOAD DELIV. AT FULL LOAD STOP

1st version

Speed rpm : 500 Aneroid pressure h: 700

Del.quantity : 201.0...206.0)

: 5.00 Spread cm3

1000 : (9.00)

RATED SPEED

1st version Control lever position degrees: 90...98 Testina: 1st rack travel in: 11.50 rpm : 1079...1080 Speed 2nd rack travel in: 4.00 rpm : 1140...1158 Speed 4th rack travel in: 1400 Speed rpm : 0.30...1.40 LOW IDLE 1 Control Lever position degrees: 68...76 Setting point w/out bumper spring rpm Rack travel in mm: 5.7 Testina: rpm : 100 Speed Minimum rack trave: 19.50 rpm : 350 Rack travel in mm : 5.60...5.80 Rack travel in mm : 2.00 rpm : 370...430 Speed SET IDLE AUXILIARY SPRING Rack travel in mm: 2.00 TORQUE CONTROL Torque control curve - 1st version 1st speed rpm : 1030 Rack travel in m: 12.50...12.70 nd speed rpm : 700 Rack travel in m: 14.10...14.30 2nd speed rpm : 900 3rd speed Rack travel in m: 13.30...13.60 Aneroid/Altitude Compensator Test 1st version Setting Speed : 600 man hPa : 700 Pressure Rack travel mm : 13.90...14.10 Measurement 1/min: 600 Speed 1st pressure hPa : 400 Rack travel in m: 12.30...12.50 2nd pressure hPa : 500 Rack travel in m: 12.60...12.80 3rd pressure hPa : 925 Rack travel in m: 14.00...14.10 * 4th pressure hPa : -

Rack travel in m: 10.80...11.10

FUEL DELIVERY CHARACTERISTICS

1st version Aneroid pressure h: 1100 Speed rom

Del.quantity cm3/: 181.0...184.0 1000 s: (178.0...187.0)

cm3 : 8.00 Spread 1000 s: (12.0) Aneroid pressure h: 1100 : 700 Speed rom

Del.quantity cm3/: 213.0...217.0 1000 s: (210.0...220.0)

cm3 : 8.00 1000 s: (12.0) Spread

Aneroid pressure h: -

Speed rpm : 500 Del.quantity cm3/ : 143.0...145.0 1000 s: (140.0...148.0)

cm3 : 8.00 Spread 1000 s: (-)

BREAKAWAY

1st version 1mm rack travel less than

full load rack tr: 11.50

rpm : 1070...1080Speed

STARTING FUEL DELIVERY

rpm : 100 Speed

Del.quantity cm3/: 180.0...200.0 1000 s: (176.0...204.0)

Remarks:

* Increase in control-rod travel with respect to setting at least 0.1 mm

N16

Note remarks

: CUM 5,9 w : 21.08.91 Test sheet Edition : 13.5.91 Replaces : ISO-4113 Test oil

: 0 402 736 806 Combination no.

Injection pump

Pump designation : PES6P110A120RS7213 EP type number : 0 412 716 804

Governor

Governor design. : RQV400...1250PA964K

: 0 421 815 252 Governer no.

Customer-spec. information Customer : C.D.C.

: 69TA-A Engine

: 171.5 1st version kW : 2500 Rated speed

TEST BENCH REQUIREMENTS

Test oil

inlet temp. °C : 38...42

Overflow valve

: 1 417 413 047

Inlet press., bar: 1.50

Overflow

quantity min. 1/h: 115...125

Test nozzle holder

: 1 688 901 101 assembly

Opening.

: 207...210 pressure, bar

Orifice plate

diameter mm : 0,6

Test Lines : 1 680 750 008

Outside diameter

x Wall thickness

x Length mm : 6.00X2.00X600

(A) Injection pump setting values Insp. values in parentheses Set equal delivery quant.

per values ____

BEGINNING OF DELIVERY

Test pressure, bar: 22...24

: 4.35...4.45 Prestroke mm : (4.30...4.50)

Rack travel in mm: 10.50

: 1-5-3-6-2-4 Firing order

: 0-60-120-180-240-300 Phasina

Tolerance + - ° : 0.50 (0.75)

Time to cyl. no. : 1

BASIC SETTING

rpm: 1250 1st speed

Rack travel in mm : 15.80...15.90

Del.quantity cm3/: 16.8...17.0

100 s: (16.5...17.3)

cm3 : 0.5Spread

100 s: (0.9)

rpm : 400.02nd speed

Rack travel in mm : 5.7...5.9 Del.quantity cm3/ : 3.2...3.8

100 s: (3.0...4.0)

cm3 : 0.8 Spread 100 s: (1.2)

(B) Setting of injection pump with governor

GUIDE SLEEVE TRAVEL

rpm : 325 1st speed

: 0.70...1.10 travel mm rpm : 4002nd speed

: 1.40...1.60 travel mm

rpm : 600 3rd speed

: 2.90...3.30 travel mm

: 1300 4th speed rpm

: 7.20...7.40 travel mm

: 1500 5th speed rpm

: 9.10...9.50 travel mm

FULL LOAD DELIV. AT FULL LOAD STOP

1st version

rpm : 1250 Speed Aneroid pressure h: 1500

: 168.5...170.5 Del.quantity

1000 : (165.5...173.5)

cm3 : 5.00 1000 : (9.00) Spread

RATED SPEED

1st version Control lever

position degrees: 59...67

Testina:

1st rack travel in: 14.80

rpm : 1290...1300 Speed

2nd rack travel in: 4.00

Speed rom : 1475...1505

4th rack travel in: 1600

Speed rpm : 0.00...1.00

LOW TDLE 1 Control Lever

position degrees: 13...21

Testina:

Speed rpm : 275 Minimum rack trave: 7.20 : 400 rpm

Rack travel in mm : 5.70...5.90

CONSTANT REGULATION

rpm : 325...520 Speed

TORQUE CONTROL

Dimension a mm : ?

Torque control curve - 1st version

rpm : 1250 1st speed

Rack travel in m: 15.80...15.90

rpm : 825 2nd speed

Rack travel in m: 14.70...14.90

rpm : 700 3rd speed

Rack travel in m: 14.00...14.40

Aneroid/Altitude Compensator Test

1st version

Setting

Speed : 1250 man. hPa : 1500 Pressure

: 15.80...15.90 Rack travel mm

Measurement

1/min: 1250 Speed

1st pressure hPa : -

Rack travel in m: 8.10...8.50

2nd pressure hPa : 375 Rack travel in m: 10.00...10.10

3rd pressure hPa : 935

Rack travel in m: 13.70...14.10

START CUT-OUT

1/min: 300 (310) Speed

FUEL DELIVERY CHARACTERISTICS

1st version

Aneroid pressure h: 1500

Speed rpm: 825
Del.quantity cm3/: 178.0...184.0
1000 s: (175.0...187.0)

cm3 : 8.00

1000 s: (12.0)

Aneroid pressure h: -

Speed rpm : 500 Del.quantity cm3/: 87.0...91.0

1000 s: (85.0...93.0)

BREAKAWAY

Spread

1st version

1mm rack travel less than

full load rack tr: 14.80

rpm : 1290...1300 Speed

STARTING FUEL DELIVERY

Speed rpm : 100 Del.quantity cm3/ : 135.0...175.0 1000 s: (130.0...180.0)

Rack travel in mm : 12.40...13.40

LOW IDLE

rpm : 400 Speed

Rack travel in mm : 5.70...5.90

Del.quantity cm3/: 32.0...38.0 1000 s: (30.0...40.0)

Spread

cm3 : 8.00

1000 s: (12.00)

Remarks:

: C.D.C # 3913440

Start-of-delivery mark 6° cam angle

after start of delivery cyl. 1

Note remarks

: CUM 8,3 r : 21.08.91 Test sheet Edition : 18.2.91 Replaces : ISO-4113 Test oil

Combination no. : 0 402 736 807

Injection pump

Pump designation : PES6P110A120RS7214

: 0 412 716 805 EP type number

Governor

: RQV350...1100PA964-1 Governor design.

: 0 421 815 253 Governer no.

Customer-spec. information Customer : C.D.C.

Engine : 6CTA-A

: 201.0 1st version kW : 2200 Rated speed

TEST BENCH REQUIREMENTS

Test oil

inlet temp. °C : 38...42

Overflow valve

: 1 417 413 047

Inlet press., bar: 1.50

Overflow

quantity min. 1/h: 115...125

Test nozzle holder

assembly : 1 688 901 101

Opening.

: 207...210 pressure, bar

Orifice plate

diameter mm : 0,6

: 1 680 750 008 Test Lines

Outside diameter

x Wall *hickness

: 6.00X2.00X600 x Length mm

(A) Injection pump setting values Insp. values in parentheses Set equal delivery quant.

per values

BEGINNING OF DELIVERY

Test pressure, bar: 22...24

: 4.35...4.45 Prestroke mm : (4.30...4.50) Rack travel in mm : 10.50 Firing order

: 1-5-3-6-2-4

: 0-60-120-180-240-300 Phasing

Tolerance + - ° : 0.50 (0.75)

Time to cyl. no. : 1

BASIC SETTING

rpm : 10501st speed

Rack travel in mm : 15.70...15.80

Del.guantity cm3/: 20.6...20.8

100 s: (20.3...21.1)

cm3 : 0.5Spread

100 s: (0.9)

2nd speed rpm : 350.0 Rack travel in mm : 5.7...5.9 Del.quantity cm3/ : 2.7...3.3

100 s: (2.5...3.5) cm3 : 0.8

Spread 100 s: (1.2)

(B) Setting of injection pump with governor

GUIDE SLEEVE TRAVEL

1st speed rpm : 350

travel mm : 1.80...2.00 450

2nd speed mar travel mm : 3.10...3.50

: 600 3rd speed rpm

travel mm

: 5.10...5.50 : 1000 4th speed rpm

: 8.10...8.30 travel mm : 1200 5th speed rpm

: 9.60...10.00 travel mm

FULL LOAD DELIV. AT FULL LOAD STOP

1st version

rpm : 1050Speed

Aneroid pressure h: 1500

Del.quantity : 206.0...208.0 1003 : (203.0...211.0)

cm3 : 5.00 1000 : (9.00) Spread RATED SPEED 1st version Control Lever position degrees: 64...72 Testing: 1st rack travel in: 14.40 rpm : 1145...1155 Speed 2nd rack travel in: 4.00 rpm : 1300...1330 Speed 4th rack travel in: 1400 rpm : 0.00...1.00 Speed LOW IDLE 1 Control lever position degrees: 11...19 Setting point w/out bumper spring COM Rack travel in mm: 5.8 Testing: Speed rpm : 275 Minimum rack trave: 7.20 Speed Speed : 350 man Rack travel in mm : 5.70...5.90 CONSTANT REGULATION rpm : 325...520 Speed TORQUE CONTROL Dimension a mm :? Torque control curve - 1st version st speed rpm : 1050
Rack travel in m: 15.70...15.80 1st speed nd speed rpm : 650 Rack travel in m: 13.20...13.60 2nd speed rpm : 1100 3rd speed Rack travel in m: 15.40...15.60 Aneroid/Altitude Compensator Test 1st version Setting Speed : 1050 man hPa : 1500 Pressure : 15.70...15.80 Rack travel mm Measurement 1/min: 1050 Speed 1st pressure hPa : -

Rack travel in m: 8.40...8.80

Rack travel in m: 10.20...10.30

2nd pressure hPa : 340

3rd pressure hPa : 840 Rack travel in m: 13.60...14.00 START CUT-OUT Speed 1/min: 290 (300) FUEL DELIVERY CHARACTERISTICS 1st version Aneroid pressure h: 1500 rpm : 650 Speed Del.quantity cm3/: 187.5...193.5 1000 s: (184.5...196.5) cm3 : 8.00 Spread 1000 s: (12.0) Aneroid pressure h: -Speed rpm: 500
Del.quantity cm3/: 98.0...102.0
1000 s: (96.0...104.0) BREAKAWAY 1st version 1mm rack travel less than full load rack tr: 14.40 rom: 1145...1155 Speed STARTING FUEL DELIVERY LOW IDLE Speed rpm : 350
Rack travel in mm : 5.70...5.90
Del.quantity cm3/: 27.0...33.0 1000 s: (25.0...35.0) cm3 : 8.00 Spread 1000 s: (12.00) Remarks: : C.D.C # 3916627 Start-of-delivery mark = 5.5° after

Start-of-delivery mark = 5.5° after start of delivery cyl. 1.

Bow dimension: Sliding-sleeve position = 37.0 mm

Note remarks

: CUM 5,9 w 1 Test sheet : 21.08.91 Edition : 14.12.90 Replaces Test oil : ISO-4113

Combination no. : 0 402 736 810

Injection pump

Pump designation : PES6P110A120RS7213 : 0 412 716 804 EP type number

Governor

: RQV400...1250PA964-2 Governor design.

: 0 421 815 254 Governer no.

Customer-spec. information : C.D.C. Customer

Engine : 6BTA-A

1st version kW : 141.0 : 2500 Rated speed

TEST BENCH REQUIREMENTS

Test oil

inlet temp. °C : 38...42

Overflow valve

: 1 417 413 047

Inlet press., bar: 1.50

Overflow

quantity min. 1/h: 115...125

Test nozzle holder

: 1 688 901 101 assembly

Opening.

pressure, bar : 207...210

Orifice plate

diameter mm : 0,6

Test Lines : 1 680 750 008

Outside diameter x Wall thickness

x Length mm : 6.00x2.00x600

(A) Injection pump setting values Insp. values in parentheses

Set equal delivery quant.

per values ____

BEGINNING OF DELIVERY

Test pressure, bar: 22...24

: 4.35...4.45 Prestroke mm : (4.30...4.50)

Rack travel in mm: 10.50

: 1-5- 3- 6- 2- 4 Firing order

Phasing : 0-60-120-180-240-300

Tolerance + - ° : 0.50 (0.75)

Time to cyl. no. : 1

BASIC SETTING

rpm: 1250 1st speed

Rack travel in mm : 14.80...14.90

Del.quantity cm3/: 15.9...16.1

100 s: (15.6...16.4)

Spread cm3 : 0.5

100 s: (0.9)

rpm : 400.02nd speed Rack travel in mm : 5.4...5.6 Del.quantity cm3/: 3.2...3.8

100 s: (3.0...4.0)

Spread cm3 : 0.8 100 s: (1.2)

(B) Setting of injection pump with governor

GUIDE SLEEVE TRAVEL

rpm : 325 1st speed

: 0.70...1.10 travel mm 2nd speed : 400 rpm

: 1.40...1.60 travel mm

3rd speed : 600 rpm

: 2.90...3.30 travel mm

4th speed : 1300 rpm : 7.20...7.40 travel mm

: 1500 5th speed rpm

: 9.10...9.50 travel mm

FULL LOAD DELIV. AT FULL LOAD STOP

1st version

Speed rpm : 1250 Aneroid pressure h: 1200

Del.quantity : 159.0...161.0 1000 : (156.0...164.0)

: 5.00 Spread cm3

1000 : (9.00)

RATED SPEED

1st version Control Lever

position degrees: 59...67

Testina:

1st rack travel in: 13.80

rpm : 1295...1305 Speed

2nd rack travel in: 4.00

: 1460...1490 Speed rpm

4th rack travel in: 1600

Speed rpm : 0.00...1.00

LOW IDLE 1 Control Lever

position degrees: 11...19

Testing:

Speed rpm Minimum rack trave: 7.20 rpm : 400

Rack travel in mm : 5.40...5.60

CONSTANT REGULATION

rpm : 325...520 Speed

TORQUE CONTROL

Dimension a mm :?

Torque control curve - 1st version

1st speed rpm : 1250

Rack travel in m: 14.80...14.90

2nd speed rpm : 800

Rack travel in m: 13.10...13.30

Aneroid/Altitude

Compensator Test

1st version

Setting

: 1250 Speed rpm hPa : 1200 Pressure

: 14.80...14.90 Rack travel mm

Measurement

1/min: 1250 Speed

1st pressure hPa : -

Rack travel in m: 8.30...8.70

2nd pressure hPa : 415
Rack travel in m: 10.20...10.30
3rd pressure hPa : 740
Rack travel in m: 13.20...13.60

START CUT-OUT

1/min: 290 (300) Speed

FUEL DELIVERY CHARACTERISTICS

1st version

Aneroid pressure h: 1200

Speed rom : 800

Del.quantity cm3/: 158.0...164.0 1000 s: (155.0...167.0) Spread cm3: 8.00

1000 s: (12.0) Aneroid pressure h: -

Speed rpm : 500

Del.quantity cm3/: 95.5...99.5 1000 s: (93.5...101.5)

BREAKAWAY

1st version

1mm rack travel less than

full load rack tr: 13.80

rpm : 1295...1305 Speed

STARTING FUEL DELIVERY

Speed rpm : 100 Del.quantity cm3/ : 135.0...175.0

1000 s: (130.0...180.0)

Rack travel in mm : 12.00...13.00

LOW IDLE

Speed : 400 rpm

Rack travel in mm : 5.40...5.60

Del.quantity cm3/: 32.0...38.0 1000 s: (30.0...40.0)

cm3 : 8.00Spread

1000 s: (12.00)

Remarks:

: C.D.C # 3919090

Start-of-delivery mark = 5.5° after

start of delivery cyl. 1.

BOSCH INJ. PUMP TEST SPECIFICATIONS BEGINNING OF DELIVERY Test pressure, bar: 22...24 Note remarks : CUM 5,9 w 2 Prestroke mm : 4.35...4.45 Test sheet : 21.08.91 : (4.30...4.50) Edition Rack travel in mm: 10.50 : 13.5.91 Replaces : 1-5-3-6-2-4 Test oil : ISO-4113 Firing order Combination no. : 0 402 736 811 : 0-60-120-180-240-300 Phasina Injection pump Pump designation : PES6P110A120RS7213 Tolerance + - ° : 0.50 (0.75) EP type number : 0 412 716 804 Governor : RQV400...1250PA964-3 Time to cyl. no. : 1 Governor design. : 0 421 815 255 BASIC SETTING Governer no. Customer-spec. information 1st speed rpm: 1250 Customer : C.D.C. Rack travel in mm: 14.80...14.90 : 6BTA-A Engine Del.quantity cm3/: 15.8...16.0 : 147.0 1st version kW 100 s: (15.5...16.3) : 2500 Rated speed cm3 : 0.5TEST BENCH REQUIREMENTS Spread 100 s: (0.9) Test oil inlet temp. °C : 38...42 2nd speed rpm : 400.0 Rack travel in mm : 5.5...5.7 Del.quantity cm3/: 3.2...3.8 100 s: (3.0...4.0) Overflow valve : 1 417 413 047 Inlet press., bar: 1.50 Spread cm3 : 0.8 100 s: (1.2) Overflow quantity min. 1/h: 115...125 (B) Setting of injection pump with governor Test nozzle holder : 1 688 901 101 assembly GUIDE SLEEVE TRAVEL rpm : 325 : 0.70...1.10 1st speed **Opening** travel mm : 207...2173 2nd speed : 400 pressure, bar rpm : 1.40...1.60 travel mm 3rd speed : 600 Orifice plate rom : 2.90...3.30 : 0,6 travel mm diameter mm rpm : 1300 4th speed : 7.20...7.40 travel mm : 1 680 750 008 rpm : 1500 Test Lines 5th speed : 9.10...9.50 travel mm Outside diameter FULL LOAD DELIV. AT FULL LOAD STOP x Wall thickness : 6.00X2.00X600 x Length mm 1st version rpm : 1250 (A) Injection pump setting values Speed Aneroid pressure h: 1200

Del.quantity : 138.3....03.5)

Insp. values in parentheses

Set equal delivery quant.

per values

cm3 : 5.00 1000 : (9.00) Spread

RATED SPEED

1st version Control Lever

position degrees: 56...64

Testing:

1st rack travel in: 13.80 rpm : 1290...1300 Speed

2nd rack travel in: 4.00

Speed rpm : 1460...1490 4th rack travel in: 1600

rpm : 0.00...1.00Speed

LOW IDLE 1 Control lever

position degrees: 12...20

Testing:

Speed rpm : 275 Minimum rack trave: 7.20 rpm : 400

Rack travel in mm : 5.50...5.70

CONSTANT REGULATION

rpm : 325...520 Speed

TORQUE CONTROL

Dimension a mm :?

Torque control curve - 1st version

1st speed rpm : 1250

Rack travel in m: 14.80...14.90

2nd speed rpm : 800

Rack travel in m: 13.20...13.40

Aneroid/Altitude Compensator Test

1st version

Setting

Speed : 1250 rpm hPa : 1200 Pressure

Rack travel mm : 14.80...14.90

Measurement

1/min: 1250 Speed

1st pressure hPa : -

Rack travel in m: 8.20...8.60

2nd pressure hPa : 410

Rack travel in m: 10.00...10.10

3rd pressure hPa : 755

Rack travel in m: 13.20...13.60

START CUT-OUT

1/min : 290 (300) Speed

FUEL DELIVERY CHARACTERISTICS

1st version

Aneroid pressure h: 1200

: 800 Speed rpm

Del.quantity cm3/: 156.5...162.5 1000 s: (153.5...165.5)

cm3 : 8.00 Spread 1000 s: (12.0)

Aneroid pressure h: -

: 500 Speed rpm

Del.quantity cm3/: 90.0...94.0 1000 s: (88.0...96.0)

BREAKAWAY

1st version 1mm rack travel less than

full load rack tr: 13.80

rpm : 1290...1300 Speed

STARTING FUEL DELIVERY

rpm : 100 Speed

Del.quantity cm3/: 135.0...175.0

1000 s: (130.0...180.0)

Rack travel in mm : 11.90...12.90

LOW IDLE

rpm : 400 Speed

Rack travel in mm : 5.50...5.70 Del.quantity cm3/: 32.0...38.0 1000 s: (30.0...40.0)

cm3 : 8.00 Spread

1000 s: (12.00)

Remarks:

: C.D.C # 3918321

Start-of-delivery mark = 5.5° after

start of delivery cyl. 1.

Note remarks

: CUM 8,3 r 6 : 21.08.91 Test sheet Edition : 18.02.91 Replaces : ISO-4113 Test oil

Combination no. : 0 402 736 812

Injection pump

Pump designation : PES6P110A120RS7214

EP type number : 0 412 716 805

Governor

Governor design. : RQV350...1200PA964-4

: 0 421 815 256 Governer no.

Customer-spec. information Customer : C.D.C.

: 6CTA-A Engine

: 156.0 1st version kW : 2400 Rated speed

TEST BENCH REQUIREMENTS

Test oil

inlet temp. °C : 38...42

Overflow valve

: 1 417 413 047

Inlet press., bar: 1.50

Overflow

quantity min. 1/h: 115...125

Test nozzle holder

: 1 688 901 101 assembly

Openina .

: 207...210 pressure, bar

Orifice plate

diameter mm : 0,6

Test lines : 1 680 750 008

Outside diameter

x Wall thickness

: 6.00x2.00x600 x Length mm

(A) Injection pump setting values Insp. values in parentheses Set equal delivery quant.

per values ___

BEGINNING OF DELIVERY

Test pressure, bar: 22...24

: 4.35...4.45 : (4.30...4.50) Prestroke mm

Rack travel in mm : 10.50

: 1-5-3-6-2-4 Firing order

: 0-60-120-180-240-300 Phasing

Tolerance + - ° : 0.50 (0.75)

Time to cyl. no. : 1

BASIC SETTING

rpm: 1200 1st speed

Rack travel in mm : 12.60...12.70

Del.quantity cm3/: 14.7...14.9

100 s: (14.4...15.2)

cm3 : 0.5Spread

100 s: (0.9)

2nd speed rpm : 350.0 Rack travel in mm: 5.7...5.9
Del.quantity cm3/: 2.7...3.3
100 s: (2.5...3.5)

cm3 : 0.8Spread 100 s: (1.2)

(B) Setting of injection pump with governor

GUIDE SLEEVE TRAVEL

1st speed rpm : 350

: 1.80...2.00 travel mm

: 450 2nd speed rpm

: 3.10...3.50 travel mm

3rd speed rpm : 700

: 5.90...6.30 travel mm

rpm : 1200 4th speed : 9.00...9.20 travel mm

: 1400 5th speed rpm

: 10.70...11.10 travel mm

FULL LOAD DELIV. AT FULL LOAD STOP

1st version

rpm : 1200 Speed Aneroid pressure h: 1200

Del.quantity : 147.5...149.5

1000 : (144.5...152.5)

N25

Spread cm3 : 5.00 1000 : (9.00) RATED SPEED 1st version Control lever position degrees: 60...68 Testing: 1st rack travel in: 11.60 rpm : 1245...1255 Speed 2nd rack travel in: 4.00 rom : 1375...1405 Speed 4th rack travel in: 1500 Speed rpm : 0.00...1.00LOW IDLE 1 Control lever position degrees: 11...19 Testing: Speed rpm : 275 Minimum rack trave: 7.20 : 350 rom Rack travel in mm : 5.70...5.90 CONSTANT REGULATION rpm : 325...520 Speed TORQUE CONTROL Dimension a mm :? Torque control curve - 1st version rpm : 1200 1st speed Rack travel in m: 12.60...12.70 2nd speed rpm : 650 Rack travel in m: 11.20...11.60 3rd speed rpm : 550 Rack travel in m: 11.10...11.50 Aneroid/Altitude Compensator Test 1st version Setting rpm : 1200 Speed Pressure hPa : 1200 Rack travel mm : 12.60...12.70 Measurement 1/min: 1200 Speed 1st pressure hPa : -Rack travel in m: 8.00...8.40 2nd pressure hPa : 225 Rack travel in m: 9.20...9.30

START CUT-OUT 1/min : 290 (300) Speed FUEL DELIVERY CHARACTERISTICS 1st version Aneroid pressure h: 1200 Speed rpm : 650 Del.quantity cm3/ : 151.0...157.0 1000 s: (148.0...160.0) cm3 : 8.00 Spread 1000 s: (12.0) Aneroid pressure h: -Speed rpm : 500 Del.quantity cm3/: 90.0...94.0 1000 s: (88.0...96.0) BREAKAWAY 1st version 1mm rack travel less than full load rack tr: 11.60 rpm : 1245...1255 Speed STARTING FUEL DELIVERY Speed rpm : 100 Del.quantity cm3/ : 135.0...175.0 1000 s: (130.0...180.0) Rack travel in mm : 11.00...12.00 LOW IDLE rpm : 350 Speed Rack travel in mm : 5.70...5.90 Del.quantity cm3/: 27.0...33.0 1000 s: (25.0...35.0) cm3 : 8.00 Spread 1000 s: (12.00) Remarks: : c.D.c. # 3917088 Start-of-delivery mark = 5.5° after start of delivery cyl. 1.

3rd pressure hPa : 515

Rack travel in m: 11.10...11.50

Note remarks

Test sheet : CUM 8,3 r 4 Edition : 21.08.91 Replaces : 7.1.91

Test oil : ISO-4113

Combination no. : 0 402 736 813

Injection pump

Pump designation : PES6P110A120RS7214

: 0 412 716 805 EP type number

Governor

: RQV350...1100PA964-5 Governor design.

Governer no. : 0 421 815 257

Customer-spec. information : C.D.C. Customer

: 6CTA-A Engine

: 187.0 1st version kW Rated speed : 2200

TEST BENCH REQUIREMENTS

Test oil

inlet temp. °C : 38...42

Overflow valve

: 1 417 413 047

Inlet press., bar: 1.50

Overflow

quantity min. 1/h: 115...125

Test nozzle holder

: 1 688 901 101 assembly

Opening .

: 207...210 pressure, bar

Orifice plate

diameter mm : 0,6

Test Lines : 1 680 750 008

Outside diameter x Wall thickness

: 6.00X2.00X600 x Length mm

(A) Injection pump setting values Insp. values in parentheses Set equal delivery quant.

per values ____

BEGINNING OF DELIVERY

Test pressure, bar: 22...24

: 4.35...4.45 Prestroke mm : (4.30...4.50)

Rack travel in mm : 10.50

: 1-5-3-6-2-4 Firing order

: 0-60-120-180-240-300 Phasing

Tolerance + - ° : 0.50 (0.75)

Time to cyl. no. : 1

BASIC SETTING

rpm: 1100 1st speed

Rack travel in mm : 14.50...14.60

Del.quantity cm3/: 18.6...18.8

100 s: (18.3...19.1)

cm3 : 0.5Spread

100 s: (0.9)

2nd speed rpm : 350.0 Rack travel in mm : 5.7...5.9 Del.quantity cm3/ : 2.7...3.3 100 s: (2.5...3.5)

cm3 : 0.8

100 s: (1.2)

(B) Setting of injection pump

with governor

GUIDE SLEEVE TRAVEL

Spread

rpm : 350 1st speed

: 1.80...2.00 travel mm

2nd speed : 450 rpm

: 3.10...3.50 travel mm

: 600 3rd speed rpm

5.10...5.50 travel mm

1000 4th speed rpm

8.10...8.30 travel mm 1200

5th speed rpm : 9.60...10.00 travel mm

FULL LOAD DELIV. AT FULL LOAD STOP

1st version

Speed rpm : 1100 Aneroid pressure h: 1200

Del.quantity : 180.3...191.5)

Spread cm3: 5.00

1000 : (9.00)

RATED SPEED

1st version Control lever

position degrees: 62...70

Testing:

1st rack travel in: 13.50

Speed rpm : 1145...1155

2nd rack travel in: 4.00

rom : 1290...1320 Speed

4th rack travel in: 1400

rpm : 0.00...1.00 Speed

LOW IDLE 1 Control lever

position degrees: 11...19

Testing:

Speed rpm Minimum rack trave: 7.20

Speed rpm : 350 Rack travel in mm : 5.70...5.90

CONSTANT REGULATION

rpm : 325...520 Speed

TORQUE CONTROL

Dimension a mm :?

Torque control curve - 1st version

1st speed rpm : 1100
Rack travel in m: 14.50...14.60
2nd speed rpm : 650
Rack travel in m: 13.50...13.70
3rd speed rpm : 500
Rack travel in m: 12.90...13.30

Aneroid/Altitude Compensator Test

1st version

Setting

Speed rom : 1100 hPa : 1200 Pressure

Rack travel mm : 14.50...14.60

Measurement

1/min: 1100 Speed

1st pressure hPa : -

Rack travel in m: 8.30...8.70

2nd pressure hPa : 285 Rack travel in m: 9.70...9.80

3rd pressure hPa : 700

Rack travel in m: 12.60...13.00

START CUT-OUT

1/min : 290 (300) Speed

FUEL DELIVERY CHARACTERISTICS

1st version

Aneroid pressure h: 1200

rpm : 650 Speed

Del.quantity cm3/: 198.0...204.0 1000 s: (195.0...207.0)

cm3 : 8.00Spread

1000 s: (12.0)

Aneroid pressure h: -

rpm_ : 500 Speed

Del.quantity cm3/ . 98.0...102.0 1000 s: (96.0...104.0)

BREAKAWAY

1st version

1mm rack travel less than

full load rack tr: 13.50

rpm : 1145...1155 Speed

STARTING FUEL DELIVERY

Speed rpm : 100

Del.quantity cm3/: 135.0...175.0 1000 s: (130.0...180.0)

Rack travel in mm : 10.80...11.80

LOW IDLE

1000 s: (12.00)

Remarks:

: C.D.C. # 3916628

Start-of-delivery mark = 5.5° after

start of delivery cyl. 1.